United States Department of Agriculture

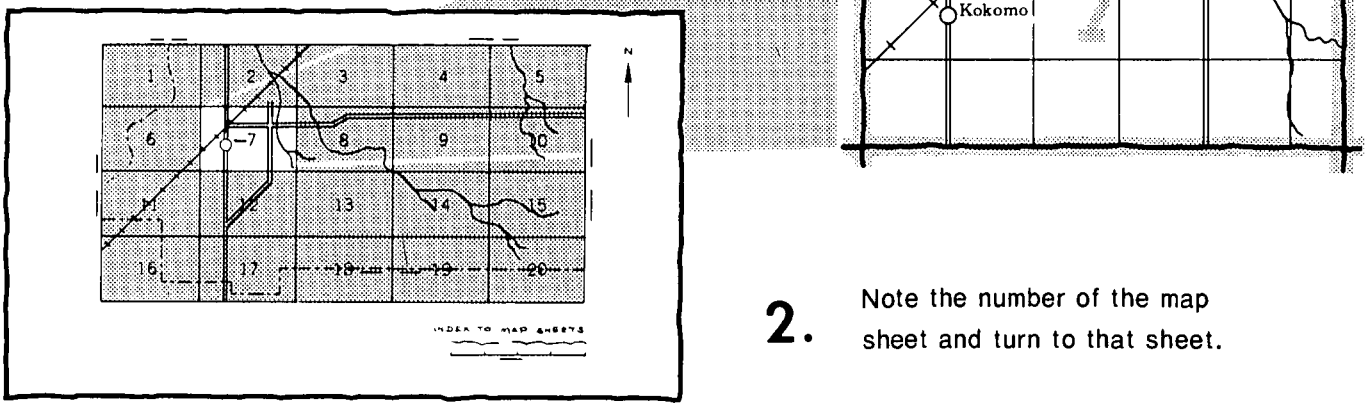
Soil Conservation Service

In cooperation with University of Georgia, College of Agriculture, Agricultural Experiment Stations

Soil Survey of Baker and Mitchell Counties, Georgia

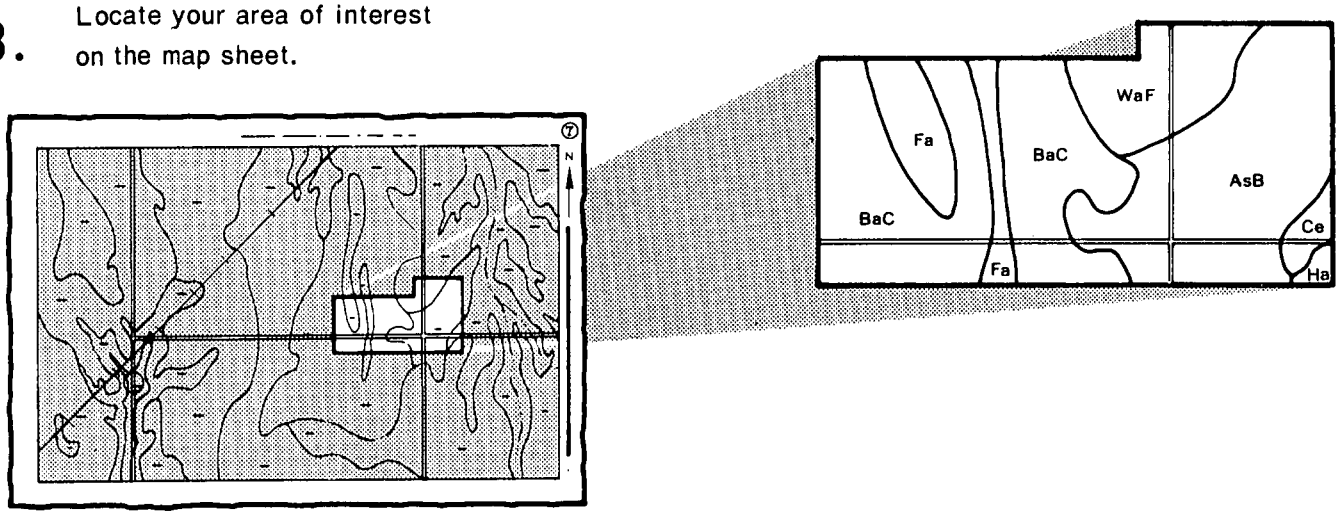
HOW TO USE

1. Locate your area of interest on the "Index to Map Sheets"

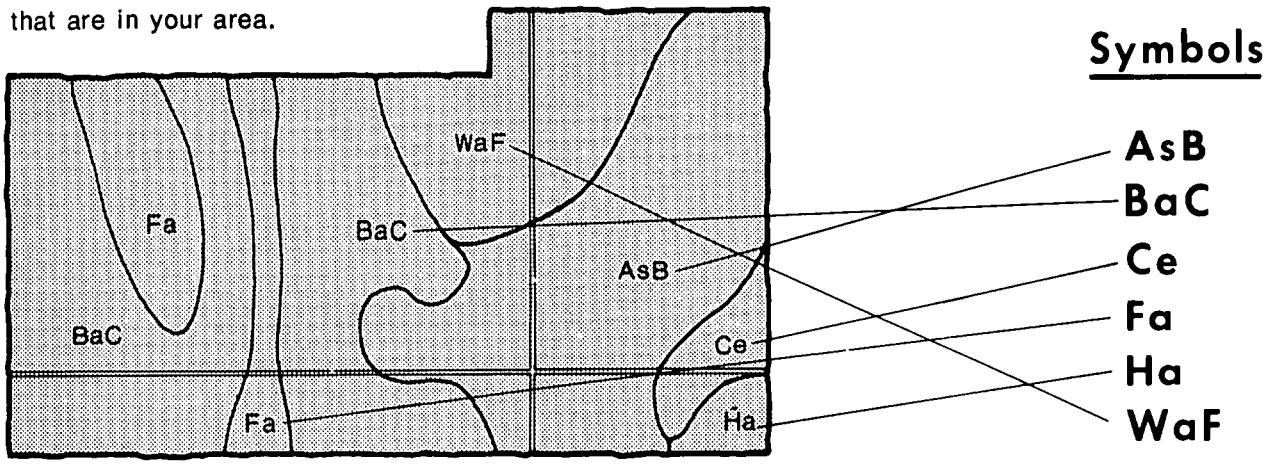


2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.

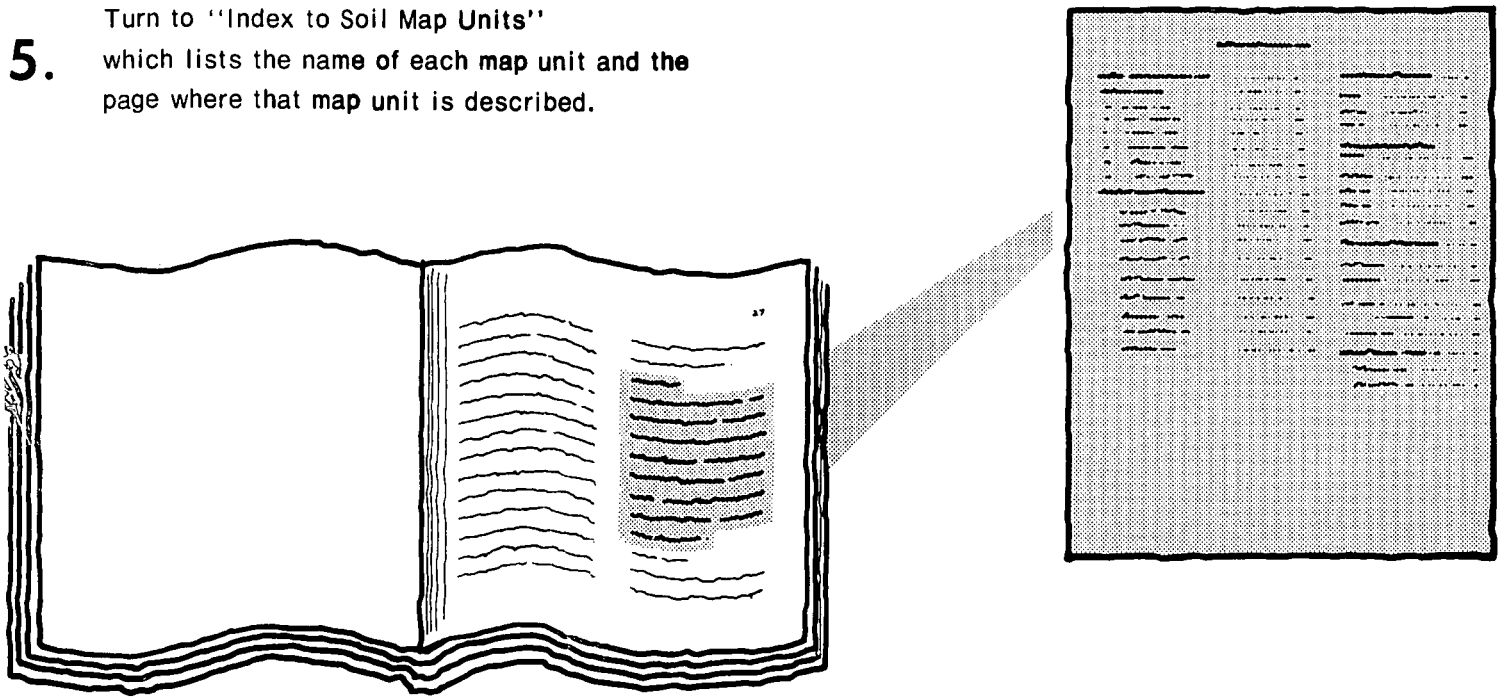


4. List the map unit symbols that are in your area.

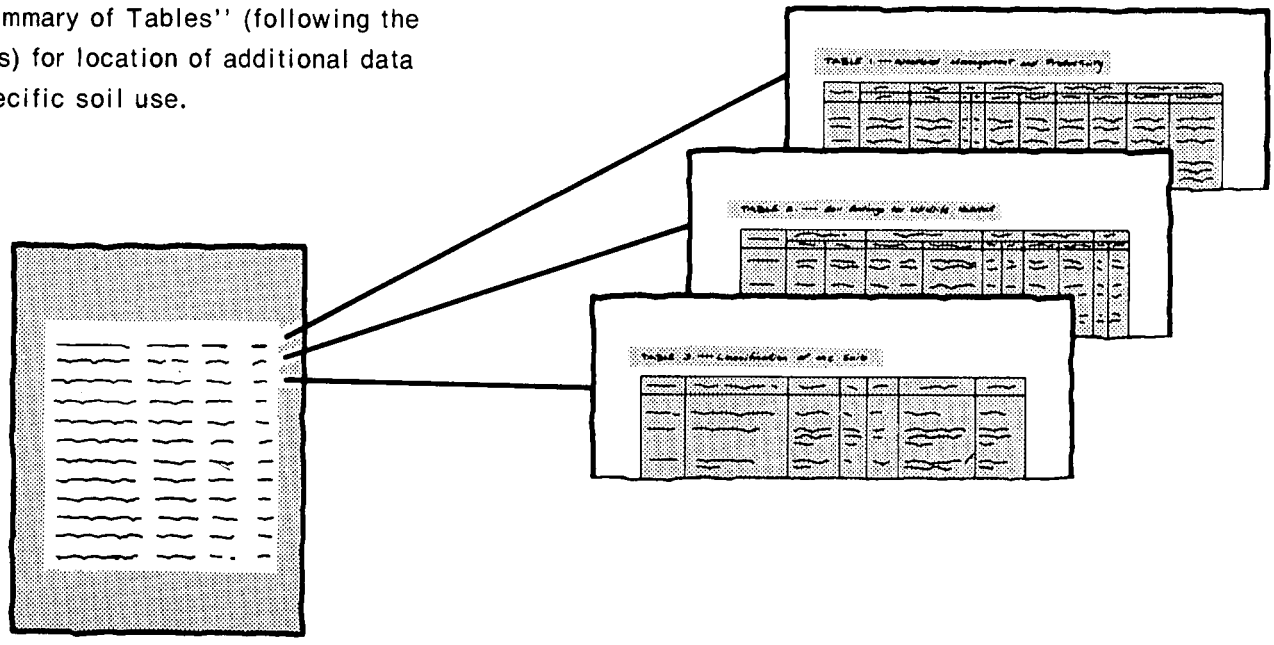


THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in 1980. Soil names and descriptions were approved in 1981. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1981. This survey was made cooperatively by the Soil Conservation Service and the University of Georgia, College of Agriculture, Agricultural Experiment Stations. It is part of the technical assistance furnished to the Flint River Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: Improved bermudagrass and slash pine on Orangeburg loamy sand, 2 to 5 percent slopes. This soil is prime farmland and is well suited to agricultural uses.

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Soil Series

Issued May 1986

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Summary of Tables

Foreword

This soil survey contains information that can be used in land-planning programs in Baker and Mitchell Counties. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

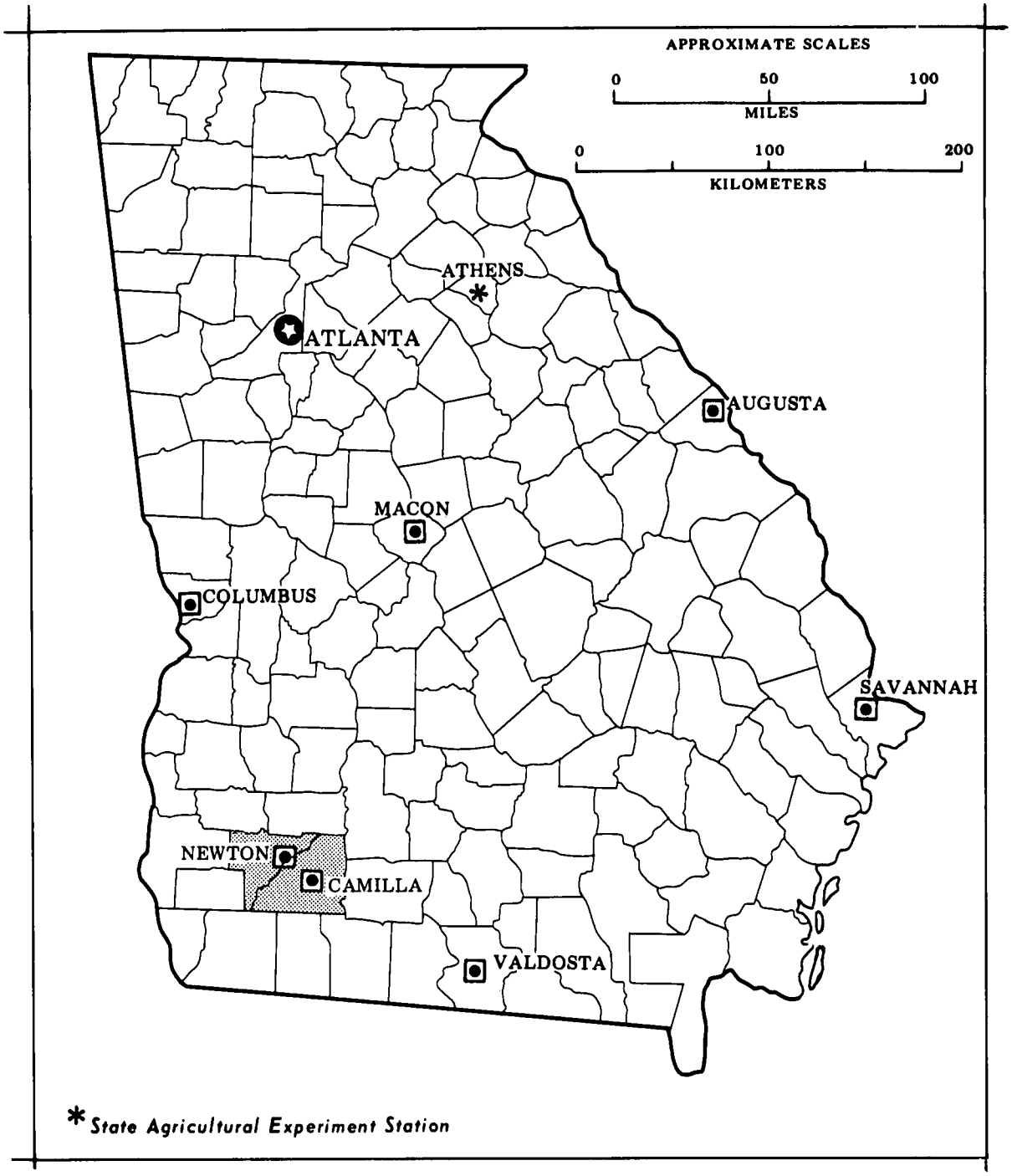
This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the suitability of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

Dwight M. Treadway

B. Clayton Graham
State Conservationist
Soil Conservation Service



Location of Baker and Mitchell Counties in Georgia

Soil Survey of Baker and Mitchell Counties, Georgia

By Howard T. Stoner, Soil Conservation Service

Fieldwork by Howard T. Stoner, Winfield S. Carson, and Royce Middleton

United States Department of Agriculture, Soil Conservation Service,
in cooperation with the University of Georgia, College of Agriculture,
Agricultural Experiment Stations

Baker and Mitchell Counties are in southwest Georgia. They cover an area of 864.6 square miles, or 553,344 acres. Baker County has 227,264 acres, and Mitchell County has 326,080 acres. Newton is the county seat of Baker County, and Camilla is the county seat of Mitchell County. In 1980, Baker County had a population of 3,808 and Mitchell County a population of 21,114. About 46 percent of the population lives in the rural area.

Baker and Mitchell Counties are in the Southern Coastal Plain Major Land Resource Area. They are separated by the Flint River. Major tributaries of the Flint River in Baker County are the Cooleewahee, Chickawhatchee, and Ichawaynochaway Creeks. Major tributaries of the Flint River in Mitchell County are Big Slough, Wethington Slough, and Raccoon Creek. The headwaters of the Little Ocklockonee River drain the eastern part of Mitchell County, and Big Creek, Little Creek, and Lost Creek are the main tributaries.

Baker and Mitchell Counties are mainly agricultural and have nearly 425,000 acres of important farmland. Industry is gaining in importance, especially in Mitchell County. Forest products, fertilizer, meat packing, garments, and farm equipment are a few of the important industries. The area has many ground transportation routes to local and out-of-state markets.

In general, the soils that are well suited to cultivated crops are also well suited to urban development. Their excellence as farmland should not be overlooked in planning.

In Baker and Mitchell Counties, the soils on uplands are best suited to both farm and nonfarm uses. These soils are well drained, on ridgetops and hillsides, and make up about three-fourths of the survey area. Most of these soils are used for farming, truck crops, or woodland.

Some of the soils are moderately suited or poorly suited to farming and to nonfarm uses. These include the moderately well drained to poorly drained, seasonally wet soils on flood plains, in upland depressions, and on low-lying areas of uplands. Other soils that are poorly suited to farming include the well drained soils on uplands that have a sandy surface layer and a thick, sandy subsurface layer, low fertility, and low available water capacity.

Most of the soils in the survey area are moderately suited or well suited to the production of trees. Some of the soils on uplands are used for commercial woodland, and the soils in upland depressions and near flood plains and stream terraces are mainly wooded.

A soil survey of Mitchell County was published in 1920(*6*). The present survey updates the first survey and provides additional information. No previous soil survey has been published for Baker County.

General Nature of the Survey Area

This section gives general information concerning Baker and Mitchell Counties. It discusses climate, settlement, natural resources, and farming.

Climate

Prepared by the National Climatic Center, Asheville, N.C.

The survey area has long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short, with only a

rare cold wave that moderates in one or two days. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Summer precipitation, mainly afternoon thunderstorms, is adequate for all crops.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Camilla, Georgia in the period 1951 to 1979. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 52 degrees F, and the average daily minimum temperature is 40 degrees. The lowest temperature on record, which occurred at Camilla on December 13, 1962, is 7 degrees. In summer the average temperature is 81 degrees, and the average daily maximum temperature is 93 degrees. The highest recorded temperature, which occurred on May 27, 1953, is 105 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 51.66 inches. Of this, 29 inches, or 55 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 24 inches. The heaviest 1-day rainfall during the period of record was 5.92 inches at Camilla on February 8, 1974. Thunderstorms occur on about 67 days each year, and most occur in summer.

Snowfall is rare. In 95 percent of the winters, there is no measurable snowfall. In 5 percent, the snowfall, usually of short duration, is more than 1 inch. The heaviest 1-day snowfall on record was more than 3 inches.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 90 percent. The sun shines 70 percent of the time possible in summer and 60 percent in winter. The prevailing wind is from the north. Average windspeed is highest, 8 miles per hour, in spring.

Severe local storms, including tornadoes, strike occasionally in or near the area. These storms are short and cause variable and spotty damage. Every few years, in summer or autumn, a tropical depression or remnant of a hurricane that has moved inland causes extremely heavy rains for 1 to 3 days.

Settlement

Baker County was established by an act of the General Assembly of Georgia on December 12, 1825. It was separated from Early County and named for Colonel John Baker of the Revolutionary War. At the time Baker County was organized, it included Dougherty and Mitchell Counties and a part of Miller County. Newton, the county seat, was named for Sergeant John Newton of the Revolutionary War.

Mitchell County was established by an act of the General Assembly of Georgia on December 21, 1857. It was separated from Baker County and named for General David B. Mitchell, twice Governor of Georgia. Camilla, the county seat, was named for Governor Mitchell's daughter.

Water Resources

The Flint River, and Cooleewahee, Chickawhatchee, and Ichawaynochaway Creeks provide water to Baker County. In addition, numerous natural ponds that contain water for only part of the year are throughout the county.

The Flint River and Big Slough, Wethington Slough, Raccoon Creek, Big Creek, Little Creek, and Lost Creek provide water to Mitchell County. There are many farm ponds in the eastern part of Mitchell County that are used for watering livestock and for irrigation and recreation.

Wells drilled into the Ocala Limestone aquifer produce abundant water. These wells range from 150 to 230 feet in depth. They provide water for irrigation and for industrial and urban uses.

Farming

Agricultural development in Baker and Mitchell Counties was slow before 1890. Lumber and naval stores brought prosperity to the early settlers. After the land was cleared, cotton was the main cash crop and corn the chief feed crop. Native grasses provided forage for livestock. The areas producing crops were fenced.

Early in the 1900's, cotton was grown on about half of the cultivated land. Corn, cowpeas, velvet beans, sweet potatoes, sugarcane, and such vegetable crops as beans, peas, tomatoes, and Irish potatoes were also grown. Oats, rye, and wheat were the chief forage crops. Cantaloupes, pecans, peaches, pears, plums, figs, and watermelon were important fruit crops. Many carloads of cantaloupes and watermelons were shipped to northern markets.

Improved varieties, seed selection, and improved cultivation methods were important factors in early agricultural development. Cotton grew and produced best on the well drained upland soils. The 1910 U.S. census of Agriculture indicates that large amounts of commercial fertilizer were used to increase crop yields.

Hog production was the most important livestock enterprise. Cattle, sheep, and goats also were important. Most farm families had a milk cow to supply milk and butter.

Since the late 1920's, the acreage of cotton has steadily declined and that of corn has increased. Peanuts, tobacco, and pecans have become important, and by the early 1970's, soybeans were being grown extensively. Corn, peanuts, soybeans, tobacco, small grain, and hay were the principal crops grown in 1978. The acreage of cropland has increased, but that of pasture and woodland has decreased.

The economic depression in the early 1930's led to misuse of the land. This misuse increased erosion on most sloping soils. Many fields were abandoned because of low crop yields. Changes in land ownership were common, and in most places soil fertility declined. There was definite need to protect the land against depletion.

In 1937, the State of Georgia enacted soil conservation district legislation. The Flint River Soil and Water Conservation District was organized, and Baker and Mitchell Counties were two of the nine counties included in the District. Farmers in Baker and Mitchell Counties who recognized the need for soil conservation to prevent soil erosion and improve or maintain fertility began using terraces, grassed waterways, improved pastures, and ponds to control erosion and increase productivity. They used the soil according to its capability and treated it in accordance with the needs of the crop. Soil survey maps made by the Soil Conservation Service became the basis for determining the capability of each soil. Many sloping, seriously eroded fields that had been cultivated were put in grass or trees.

In the 1960's and early 1970's, public concern about the productive capacity of American agriculture prompted a national inventory of important farmlands. The best land in Baker and Mitchell Counties available for producing food, feed, forage, fiber, and oilseed crops is identified in the section "Important farmland."

According to the 1978 U.S. Census of Agriculture, 154,155 acres, or 67.8 percent of Baker County was in farmland; 240,004 acres, or 73.6 percent of Mitchell County was in farmland. These counties produce significant amounts of high-yielding peanuts, corn, soybeans, tobacco, pecans, truck crops, and vegetable plants.

Many of the soils are well suited to sprinkler irrigation. The amount of land under irrigation increased from 14,364 acres in 1974 to 58,378 acres in 1978. Most of the irrigated land is used for vegetable plants, tobacco, peanuts, and corn.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biologic activity.

The soils in the survey area occur in an orderly pattern that is related to the geology, the landforms, relief, climate, and the natural vegetation of the area. Each kind of soil is associated with a particular kind or segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept or model of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with considerable accuracy the kind of soil at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another resulting in gradual changes in characteristics. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, acidity, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpreted the data from these analyses and tests as well as the field-observed characteristics and the soil properties in terms of expected behavior of the soils under different uses. Interpretations for all of the soils were field tested through observation of the soils in

different uses under different levels of management. Some interpretations are modified to fit local conditions, and new interpretations sometimes are developed to meet local needs. Data were assembled from other sources such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management were assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can state with a fairly high degree of probability that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by several kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. These latter soils are called inclusions or included soils.

Most inclusions have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed, and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soils on the landscape.

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data. The objective of soil mapping is not to delineate pure taxonomic classes of soils but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but onsite investigation to precisely define and locate the soils is needed to plan for intensive uses in small areas.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The soils in the survey area are rated for visual diversity. This rating, based on the visual elements of landforms, water, vegetation or land use, and structures, assigns values to landscape elements and the patterns they form within the frame of reference of a local geographic area. The map units are classified as having a high, moderate, or low degree of visual diversity (*11*). These ratings can be used to plan conservation measures and to establish an esthetically pleasing continuity of landscape elements.

The general soil map units differ in suitability for major land uses. This section points out the extent of the units, their components, and the soil properties that limit their use. It also gives the suitability and the degree of limitation for the common uses.

Descriptions of Map Units in Baker County

Nearly level soils on flood plains

One map unit in Baker County is made up of nearly level, poorly drained soils on flood plains. Slopes range from 0 to 2 percent. The soils are mainly grayish throughout and have a loamy surface layer and a clayey subsoil, or they are loamy throughout and have a brownish surface layer and dominantly grayish underlying layers.

1. Meggett-Muckalee

Poorly drained soils that have a loamy surface layer and a clayey subsoil or that mainly are loamy throughout

This map unit consists of poorly drained, nearly level soils that are mainly on the long, broad flood plain of Chickasawhatchee Creek and Cooleewahee Creek. Slope is 0 to 2 percent. Most of the streams are winding and flow continuously throughout the year; they frequently flood in winter and spring. The soils in this map unit are mainly in sweetgum, blackgum, bay, baldcypress, poplar, and water oak. Other than roads and utilities, there is little manmade development. Degree of visual diversity is low.

This map unit makes up about 3 percent of Baker County. Meggett soils make up about 52 percent of the unit; Muckalee soils, about 30 percent; and minor soils, about 18 percent.

Meggett soils have a clayey subsoil. Typically, the surface layer is very dark gray loam 3 inches thick. The subsurface layer is dark grayish brown fine sandy loam 5 inches thick. The subsoil extends to a depth of 62 inches or more. In the upper part it is dark gray, and in the lower part it is gray. Brownish mottles are throughout the subsoil.

Muckalee soils are mainly loamy throughout. Typically, the surface layer is very dark grayish brown 5 inches thick. The underlying layers to a depth of 65 inches are dominantly gray and have thin, brownish strata.

Minor soils in this map unit are Bonneau, Osier, and Pelham. Poorly drained Osier and Pelham soils are on the flood plain with the major soils. Moderately well drained Bonneau soils are on low-lying areas of uplands adjacent to the flood plain.

These soils are well suited to the commonly grown pines. The flood hazard and the seasonal high water table severely limit farming and most nonfarm uses.

Nearly level soils on stream terraces

One map unit in Baker County is made up of somewhat poorly drained, moderately well drained, and excessively drained soils on stream terraces. Slope is 0 to 2 percent. The somewhat poorly drained soils have a grayish loamy surface layer, a brownish loamy subsurface layer, and a mottled, predominantly grayish clayey subsoil. The moderately well drained soils have a brownish sandy surface layer, a reddish and brownish,

predominantly clayey subsoil, and a mottled brownish loamy underlying layer. The excessively drained soils are brownish and sandy throughout.

2. Wahee-Hornsville-Bigbee

Somewhat poorly drained and moderately well drained soils that have a loamy surface layer and a clayey subsoil, and excessively drained soils that are sandy throughout

This map unit consists of somewhat poorly drained, moderately well drained, and excessively drained, nearly level soils mainly on long, smooth stream terraces near Ichawaynochaway Creek and the Flint River. Slope is 0 to 2 percent. In a few places, backwater has collected in sloughs, and most areas of the map unit are occasionally flooded in winter and spring. The soils in this map unit are mainly in woodland; some areas are used for farming. Other than roads and utilities, there is little manmade development. Degree of visual diversity is low.

This map unit makes up about 6 percent of Baker County. Wahee soils make up about 39 percent of the unit; Hornsville soils, about 38 percent; Bigbee soils, about 11 percent; and minor soils, about 12 percent.

Wahee soils are somewhat poorly drained. Typically, the surface layer is very dark gray fine sandy loam 4 inches thick. The subsurface layer to a depth of 10 inches is grayish brown fine sandy loam. The subsoil extends to a depth of 65 inches or more. In the upper few inches it is light yellowish brown sandy clay loam that has brownish, yellowish, and gray mottles. In the middle part it is dominantly gray clay that has brownish and reddish mottles. In the lower part it is light gray sandy clay loam and has brownish yellow mottles.

Hornsville soils are moderately well drained. Typically, the surface layer is dark grayish brown fine sandy loam 6 inches thick. The subsoil extends to a depth of 43 inches. In the upper part it is brown sandy loam, in the middle part it is mainly yellowish red sandy clay, and in the lower part it is strong brown sandy clay loam and has yellowish red and light brownish gray mottles. The underlying layer to a depth of 62 inches or more is strong brown sandy loam that has yellowish red and light brownish gray mottles.

Bigbee soils are excessively drained. Typically, the surface layer is dark grayish brown sand 8 inches thick. The underlying layers to a depth of 96 inches or more are predominantly sand. The upper layers are mainly yellowish brown and light yellowish brown, and the lower layers are very pale brown; small pockets of clean and white grains of sand are in most layers.

Minor soils in this map unit are Kershaw, Maxton, and Suffolk. Excessively drained Kershaw soils are on dunes of uplands; well drained Maxton and Suffolk soils are on stream terraces with the major soils.

Overcoming wetness and flooding is the main concern in managing these soils. The soils are well suited to the commonly grown pines. The flood hazard commonly limits farming and in places, severely limits nonfarm uses.

Nearly level soils on low-lying areas of uplands

One map unit in Baker County is made up of poorly drained and moderately well drained soils on low-lying areas of uplands. Slope is 0 to 2 percent. The poorly drained soils are mainly grayish throughout and have a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil, or a loamy surface layer and a clayey subsoil. The moderately well drained soils have a brownish sandy surface layer, a thick, brownish sandy subsurface layer, and a mottled brownish and yellowish loamy subsoil.

3. Pelham-Bonneau-Grady

Poorly drained and moderately well drained soils that have a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil; and poorly drained soils that have a loamy surface layer and a clayey subsoil

This map unit consists of poorly drained, nearly level soils mainly in depressions and near drainageways, and moderately well drained, nearly level soils on slightly higher lying areas. Slope is 0 to 2 percent. Individual areas are in the northwestern part of the county.

Most of the natural ponds do not flow continuously, and areas near streams are occasionally flooded in winter and spring. The soils in this map unit are mainly in blackgum, baldcypress, and water oak; some are in pasture. Other than roads and utilities, there is little manmade development. Degree of visual diversity is low.

This map unit makes up about 4 percent of Baker County. Pelham soils make up about 50 percent of the unit; Bonneau soils, about 30 percent; Grady soils, about 15 percent; and minor soils, about 5 percent.

Pelham soils are poorly drained and have a loamy subsoil. Typically, the surface layer is black loamy sand 4 inches thick. The subsurface layer is loamy sand and extends to a depth of 22 inches. It is very dark gray in the upper part and mainly gray below. The subsoil is predominantly sandy clay loam and extends to a depth of 72 inches or more. It is light gray throughout and has brownish and reddish mottles.

Bonneau soils are moderately well drained and have a loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsurface layer is loamy sand and extends to a depth of 34 inches. It is mainly very pale brown. The subsoil extends to a depth of 64 inches or more. The upper part is mainly light yellowish brown sandy loam, the middle part is brownish yellow sandy clay loam that has light gray and yellowish brown mottles, and the lower part is light yellowish brown sandy clay loam that has yellowish brown and light gray mottles.

Grady soils are poorly drained and have a mainly clayey subsoil. Typically, the surface layer is very dark gray fine sandy loam 5 inches thick. The subsoil extends to a depth of 72 inches or more. It is mainly dark gray and gray clay and has yellowish brown mottles in the lower part.

Minor soils in this map unit are Albany, Goldsboro, and Wagram. Somewhat poorly drained Albany soils and moderately well drained Goldsboro soils are on somewhat higher low-lying areas. Well drained Wagram soils are on higher lying ridgetops.

Wetness is the main concern in managing the soils in depressions and near drainageways. The seasonal high water table severely limits farming and nonfarm uses. Low available water capacity is the main concern in managing the soils on the slightly higher lying areas. However, these soils are well suited to the commonly grown pines and to most nonfarm uses.

Nearly level to gently sloping soils on uplands

Five map units in Baker County are made up of dominantly well drained soils and poorly drained soils on uplands. The dominantly well drained soils are on ridgetops and hillsides, and the poorly drained soils are in depressions. Slope is 0 to 8 percent. The soils on ridgetops and hillsides have a mainly brownish sandy surface layer and a brownish or reddish loamy subsoil, or they have a brownish sandy surface layer, a thick, sandy subsurface layer, and a brownish or reddish loamy subsoil. The soils in depressions are mainly grayish throughout and have a loamy surface layer and a clayey subsoil.

4. Orangeburg-Red Bay-Grady

Well drained soils that have a sandy surface layer and a loamy subsoil, on ridgetops and hillsides; and poorly drained soils that have a loamy surface layer and a clayey subsoil, in depressions

This map unit consists of well drained, nearly level to gently sloping soils on convex ridgetops and short hillsides and poorly drained, nearly level soils in depressions. Slope is mainly 0 to 8 percent. Individual areas are in the northwestern part of the county. Soils in the depressions are seasonally ponded from winter to early summer. Streams throughout the rest of the unit do not flow continuously. The soils on ridgetops and hillsides are used for farming; beef cattle and hogs and truck crops are important commodities raised on these soils. Wood products are important also. Roads and farmsteads are common. The soils in depressions are mainly in baldcypress, blackgum, and water oak; some areas are dominated by water tolerant shrubs and grasses. Degree of visual diversity is moderate.

This map unit makes up about 20 percent of Baker County. Orangeburg soils make up about 42 percent of the unit; Red Bay soils, about 25 percent; Grady soils, about 13 percent; and minor soils, about 20 percent.

The nearly level to gently sloping Orangeburg soils are on ridgetops and hillsides. They are well drained and have mainly a red subsoil that is loamy. Typically, the surface layer is brown loamy sand 8 inches thick. The subsoil extends to a depth of 72 inches or more. The upper few inches are yellowish red sandy loam, the middle part is red sandy clay loam, and the lower part is dominantly red sandy clay.

The nearly level to gently sloping Red Bay soils are on ridgetops and hillsides. They are well drained and have a dark red subsoil that is loamy. Typically, the surface layer is dark reddish brown loamy sand 10 inches thick. The subsoil to a depth of 72 inches or more is dominantly dark red sandy clay loam.

The nearly level Grady soils are in depressions. They are poorly drained and have a predominantly grayish subsoil that is clayey. Typically the surface layer is very dark gray fine sandy loam 5 inches thick. The subsoil to a depth of about 72 inches or more is mainly gray clay that has yellowish brown mottles in the lower part.

Minor soils in this map unit are Bonneau, Greenville, and Pelham. Well drained Greenville soils are on the ridgetops and hillsides. Moderately well drained Bonneau soils are on low-lying areas of the upland. Poorly drained Pelham soils are mainly in depressions.

Controlling erosion is the main concern in managing the soils on ridgetops and hillsides. These soils are well suited to most uses. Soils in depressions have a seasonal high water table and are severely limited for most uses.

5. Orangeburg-Lucy-Grady

Well drained soils that have a sandy surface layer and a loamy subsoil or a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil, on ridgetops and hillsides; and poorly drained soils that have a loamy surface layer and a clayey subsoil, in depressions

This map unit consists of well drained, nearly level to gently sloping soils on convex ridgetops and short hillsides, and poorly drained, nearly level soils in depressions. Slope is 0 to 8 percent. Individual areas are in the central and in the northeastern parts of the county. Soils in the depressions are seasonally ponded from winter to early summer. Streams in the other areas of the map unit do not flow continuously. The soils on ridgetops and hillsides are used for farming; beef cattle and hogs, pecans, and truck crops are important commodities raised on these soils. Wood products are important also. Roads and farmsteads are common. The soils in depressions are mainly in baldcypress, blackgum, and water oak; some areas are dominated by water tolerant shrubs and grasses. Degree of visual diversity is moderate.

This map unit makes up about 28 percent of Baker County. Orangeburg soils make up about 40 percent of

the unit; Lucy soils, about 19 percent; Grady soils, about 12 percent; and minor soils, about 29 percent.

The nearly level to gently sloping Orangeburg soils are on ridgetops and hillsides. They are well drained and have a sandy surface layer and a loamy subsoil. Typically, the surface layer is brown loamy sand 8 inches thick. The subsoil extends to a depth of 72 inches or more. The upper few inches are yellowish red sandy loam, the middle part is red sandy clay loam, and the lower part is dominantly red sandy clay.

The nearly level to gently sloping Lucy soils are on ridgetops and hillsides. They are well drained and have a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil. Typically, the surface layer is dark brown loamy sand 9 inches thick. The subsurface layer is loamy sand about 20 inches thick. It is dark brown in the upper part and yellowish red in the lower part. The subsoil to a depth of 72 inches or more is yellowish red sandy loam in the upper part and red sandy clay loam below.

The nearly level Grady soils are in depressions. They are poorly drained and have a loamy surface layer and a clayey subsoil. Typically, the surface layer is very dark gray fine sandy loam 5 inches thick. The subsoil to a depth of about 72 inches or more is mainly gray clay that has yellowish brown mottles in the lower part.

Minor soils in this unit are Bonneau, Duplin, Goldsboro, Pelham, and Wagram. Well drained Wagram soils are on the ridgetops and hillsides. Moderately well drained Goldsboro soils, Duplin soils, and Bonneau soils are on low-lying areas of the upland. The poorly drained Pelham soils are mainly in depressions.

Controlling erosion and increasing available water capacity are the main concerns in managing the soils on ridgetops and hillsides. Most of these soils are well suited to most uses. The soils in depressions have a seasonal high water table and are severely limited for most uses.

6. Norfolk-Wagram-Grady

Well drained soils that have a sandy surface layer and a loamy subsoil or a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil, on ridgetops and hillsides; and poorly drained soils that have a loamy surface layer and a clayey subsoil, in depressions

This map unit consists of well drained, nearly level to gently sloping soils on convex ridgetops and short hillsides and poorly drained, nearly level soils in depressions. Slope is 0 to 8 percent. Individual areas are in the central and western parts of the county. Soils in the depressions are seasonally ponded from winter to early summer. The soils on ridgetops and hillsides are used for farming; beef cattle and hogs, pecans, and truck crops are important commodities raised on these soils. Woodland products are important also. Roads and farmsteads are common. The soils in depressions are mainly in baldcypress, blackgum, and water oak; some areas are dominated by water-tolerant shrubs and grasses. Degree of visual diversity is moderate.

This map unit makes up about 12 percent of Baker County. Norfolk soils make up about 40 percent of the unit; Wagram soils, about 20 percent; Grady soils, about 15 percent; and minor soils, about 25 percent.

The nearly level to gently sloping Norfolk soils are on convex ridgetops and short hillsides. They are well drained and have a sandy surface layer and a loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsoil to a depth of 72 inches or more is dominantly yellowish brown sandy clay loam.

The nearly level to gently sloping Wagram soils are on convex ridgetops and short hillsides. They are well drained and have a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil. Typically, the surface layer is grayish brown loamy sand 6 inches thick. The subsurface layer is light yellowish brown loamy sand 22 inches thick. The subsoil to a depth of 82 inches or more is brownish yellow sandy loam in the upper few inches and yellowish brown sandy clay loam below.

The nearly level Grady soils are in depressions. They are poorly drained and have a loamy surface layer and a clayey subsoil. Typically, the surface layer is very dark gray fine sandy loam 5 inches thick. The subsoil to a depth of about 72 inches or more is mainly gray clay that has yellowish brown mottles in the lower part.

Minor soils in this map unit are Bonneau, Duplin, Goldsboro, and Pelham. Moderately well drained Bonneau, Duplin, and Goldsboro soils are on low-lying areas of the upland. Poorly drained Pelham soils are mainly in depressions.

Controlling erosion or increasing available water capacity is the main concern in managing the soils on ridgetops and hillsides. Most of these soils are well suited to most uses. Soils in depressions have a seasonal high water table and are severely limited for most uses.

7. Tifton-Norfolk-Grady

Well drained soils that have a sandy or loamy surface layer and a loamy subsoil, on ridgetops or hillsides; and poorly drained soils that have a loamy surface layer and a clayey subsoil, in depressions

This map unit consists of well drained, nearly level to gently sloping soils on smooth and convex ridgetops and short hillsides, and poorly drained, nearly level soils in depressions. Slope is 0 to 8 percent. Individual areas are in the southwestern part of the county. Soils in the depressions are seasonally ponded from winter to early summer. Streams throughout the rest of the unit do not flow continuously. The soils on ridgetops and hillsides are used mainly for farming; pecans, truck crops, and woodland are also important. Roads and farmsteads are common. The soils in depressions are mainly in

baldcypress, blackgum, and water oak; some areas are dominated by water tolerant shrubs and grasses. Degree of visual diversity is moderate.

This map unit makes up about 5 percent of Baker County. Tifton soils make up about 40 percent of the unit; Norfolk soils, about 25 percent; Grady soils, about 15 percent; and minor soils, about 20 percent.

The nearly level to gently sloping Tifton soils are on ridgetops. They are well drained and have a sandy surface layer and a mainly brownish loamy subsoil that is mottled and contains plinthite. Typically, the surface layer is dark grayish brown loamy sand 8 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 60 inches or more. The upper part is yellowish brown, the middle part is yellowish brown and has reddish and brownish mottles, and the lower part is brownish yellow and has strong brown mottles. Plinthite is below a depth of about 30 inches and makes up 5 to 10 percent in the lower part of the subsoil. Nodules of ironstone are on the surface and throughout the soil.

The nearly level to gently sloping Norfolk soils are on ridgetops and hillsides. They are well drained and have a sandy surface layer and a loamy, mainly brownish subsoil. Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsoil to a depth of 72 inches or more is dominantly yellowish brown sandy clay loam.

Grady soils have a dominantly grayish subsoil. Typically, the surface layer is very dark gray fine sandy loam 5 inches thick. The subsoil to a depth of about 72 inches or more is mainly gray clay that has yellowish brown mottles in the lower part.

Minor soils in this map unit are Albany, Bonneau, Clarendon, Goldsboro, and Pelham. Somewhat poorly drained Albany soils and moderately well drained Bonneau, Clarendon, and Goldsboro soils are on low-lying areas of the upland. Poorly drained Pelham soils are mostly in depressions.

Controlling erosion is the main concern in managing the soils on ridgetops and hillsides. These soils are well suited to most uses. The soils in depressions have a seasonal high water table and are severely limited for most uses.

8. Wagram-Troup-Lucy

Well drained soils that have a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil; on ridgetops and hillsides

This map unit consists of nearly level to gently sloping soils on ridgetops and short hillsides. Slope is 0 to 8 percent. Individual areas are in a wide band that, generally, runs parallel to the Flint River. The soils are used mainly for farming; pecans, truck crops, and woodland are also important. Few roads, farmsteads, and bodies of water are in areas of this map unit, and none of the streams flow continuously. Degree of visual diversity is moderate.

This map unit makes up about 22 percent of Baker County. Wagram soils make up about 40 percent of the unit; Troup soils, about 30 percent; Lucy soils, about 16 percent; and minor soils, about 14 percent.

Wagram soils have a subsurface layer that extends to a depth of 20 to 40 inches and a mainly brownish subsoil. Typically, the surface layer is grayish brown loamy sand 6 inches thick. The subsurface layer is light yellowish brown loamy sand 22 inches thick. The subsoil extends to a depth of 82 inches or more. It is brownish yellow sandy loam in the upper few inches and yellowish brown sandy clay loam below.

Troup soils have a subsurface layer that extends to a depth of 40 inches or more. Typically, the surface layer is dark brown sand 4 inches thick. The subsurface layer is dominantly sand and extends to a depth of 53 inches. It is yellowish brown in the upper part and light yellowish brown in the middle and lower parts. The subsoil extends to a depth of 82 inches or more. It is strong brown sandy loam in the upper few inches and strong brown sandy clay loam below.

Lucy soils have a subsurface layer that extends to a depth of 20 to 40 inches and a reddish subsoil. Typically, the surface layer is dark brown loamy sand 9 inches thick. The subsurface layer is loamy sand about 20 inches thick. It is dark brown in the upper part and yellowish red in the lower part. The subsoil extends to a depth of 72 inches or more. It is yellowish red sandy loam in the upper part and red sandy clay loam below.

Minor soils in this map unit are Albany, Bonneau, Faceville, Goldsboro, Grady, Lakeland, and Pelham. Somewhat poorly drained Albany soils and moderately well drained Bonneau and Goldsboro soils are on low-lying areas of the upland. Poorly drained Grady and Pelham soils are in depressions. Excessively drained Lakeland soils and well drained Faceville soils are on ridgetops and hillsides with the major soils.

The soils are well suited to most nonfarm uses. Low available water capacity limits the use of these soils for farming and woodland.

Descriptions of Map Units in Mitchell County

Nearly level soils on flood plains

One map unit in Mitchell County is made up of nearly level, poorly drained soils on flood plains. Slopes range from 0 to 2 percent. The soils are dominantly grayish. They are sandy throughout, or have a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil.

1. Osier-Pelham

Poorly drained soils that are sandy throughout, or that have a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil

This map unit consists of poorly drained, nearly level soils that are mainly on long flood plains in the southeastern part of the county. Slope is 0 to 2 percent. Most of the streams are winding and flow continuously; they occasionally flood from winter to mid-spring. The soils in this map unit are mainly in woodland and pasture. Other than roads and utilities, there is little manmade development. Degree of visual diversity is low.

This map unit makes up about 3 percent of Mitchell County. Osier soils make up about 64 percent of the unit; Pelham soils, about 17 percent; and minor soils, about 19 percent.

Osier soils are sandy throughout. Typically, the surface layer is 15 inches thick. It is very dark gray sand in the upper part and dark gray loamy sand in the lower part. The underlying layers to a depth of 72 inches or more are mainly gray or grayish sand.

Pelham soils have a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil. Typically, the surface layer is black loamy sand 4 inches thick. The subsurface layer is loamy sand and extends to a depth of 22 inches. It is very dark gray in the upper part and mainly gray in the lower part. The subsoil is dominantly sandy clay loam and extends to a depth of 72 inches or more. It is light gray throughout and has brownish and reddish mottles.

Minor soils in this map unit are Bonneau, Duplin, and Grady. Poorly drained Grady soils are in depressions. Moderately well drained Bonneau and Duplin soils are on low-lying uplands.

The hazard of flooding and the seasonal high water table severely limit these soils for farming and most nonfarm uses.

Nearly level soils on stream terraces

One map unit in Mitchell County is made up of moderately well drained and somewhat poorly drained soils on stream terraces. Slope is 0 to 2 percent. The moderately well drained soils have a brownish loamy surface layer, a reddish and brownish clayey subsoil, and a mottled, brownish loamy underlying layer. The somewhat poorly drained soils have a grayish loamy surface layer, a brownish loamy subsurface layer, and a mottled dominantly grayish clayey subsoil.

2. Hornsville-Wahee

Moderately well drained and somewhat poorly drained soils that have a loamy surface layer and a clayey subsoil

This map unit consists of moderately well drained and somewhat poorly drained, nearly level soils that are mainly on long, smooth stream terraces near the Flint River. Slope is 0 to 2 percent. In a few places backwater has collected in sloughs. Most areas of the unit are flooded occasionally in winter and spring. The soils in this map unit are mainly wooded. Some areas are used for farming. Other than roads and utilities, there is little manmade development. Degree of visual diversity is low.

This map unit makes up about 2 percent of Mitchell County. Hornsville soils make up 63 percent of the unit; Wahee soils, about 23 percent; and minor soils, about 14 percent.

Hornsville soils are moderately well drained. Typically, the surface layer is dark grayish brown fine sandy loam 6 inches thick. The subsoil extends to a depth of 43 inches. The upper part is brown sandy loam, the middle part is mainly yellowish red sandy clay, and the lower part is strong brown sandy clay loam that has reddish and grayish mottles. The underlying layer to a depth of 62 inches or more is strong brown sandy loam that has reddish and grayish mottles.

Wahee soils are somewhat poorly drained. Typically, the surface layer is very dark gray fine sandy loam 4 inches thick. The subsurface layer is grayish brown fine sandy loam to a depth of 10 inches. The subsoil extends to a depth of 65 inches or more. In the upper few inches it is light yellowish brown sandy clay loam that has brownish, yellowish, and gray mottles, and in the middle part it is dominantly gray clay that has brownish and reddish mottles. In the lower part it is light gray sandy clay loam.

Minor soils in this map unit are Bigbee, Maxton, and Suffolk. Well drained Maxton and Suffolk soils and excessively drained Bigbee soils are on stream terraces with the major soils.

Overcoming wetness and flooding is the main concern in managing these soils. However, the soils are well suited to the commonly grown pines. The flood hazard limits farming and, in places, severely limits nonfarm uses of these soils.

Nearly level soils on low-lying areas of uplands

Two map units in Mitchell County are made up of moderately well drained and poorly drained soils on low-lying areas of uplands. Slope is 0 to 2 percent. The moderately well drained soils have a brownish sandy or loamy surface layer and a mottled dominantly brownish loamy or clayey subsoil, or a brownish sandy surface layer, a thick, sandy subsurface layer, and a mottled dominantly brownish loamy subsoil. The poorly drained soils mainly are grayish throughout and have a loamy surface layer and a clayey subsoil.

3. Goldsboro-Grady-Bonneau

Moderately well drained soils that have a sandy surface layer and a loamy subsoil or a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil; and poorly drained soils that have a loamy surface layer and a clayey subsoil

This map unit consists of nearly level, moderately well drained soils on low-lying areas of the upland and poorly drained, nearly level soils in depressions. Slope is 0 to 2

percent. Individual areas are in the central and northeastern parts of the county. Soils in depressions are seasonally ponded from winter to early summer. Streams throughout the rest of the area do not flow continuously. The soils in this map unit are mainly in woodland and pasture. Other than roads and utilities, there is little manmade development. Degree of visual diversity is low.

This map unit makes up about 6 percent of Mitchell County. Goldsboro soils make up about 60 percent of the unit; Grady soils, about 20 percent; Bonneau soils, about 11 percent; and minor soils, about 9 percent.

Goldsboro soils are on low-lying areas of uplands. They are moderately well drained. Typically, the surface layer is grayish brown loamy sand 8 inches thick. The subsoil is sandy clay loam and extends to a depth of 64 inches or more. The upper part is yellowish brown and has yellowish red mottles, the middle part is mainly brownish yellow and has strong brown and light brownish gray mottles, and the lower part is gray and has strong brown mottles.

Grady soils are in depressions. They are poorly drained. Typically, the surface layer is very dark gray fine sandy loam 5 inches thick. The subsoil to a depth of 72 inches or more is mainly gray clay that has yellowish brown mottles in the lower part.

Bonneau soils are on low-lying areas of uplands. They are moderately well drained. Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsurface layer is loamy sand and extends to a depth of about 34 inches. It is mainly very pale brown. The subsoil extends to a depth of 64 inches or more. The upper part is mainly light yellowish brown sandy loam, the middle part is brownish yellow sandy clay loam that has light gray and yellowish brown mottles, and the lower part is light yellowish brown sandy clay loam that has light gray and yellowish brown mottles.

Minor soils in this map unit are Albany, Duplin, and Pelham. Somewhat poorly drained Albany soils and moderately well drained Duplin soils are on low-lying areas of the upland. Poorly drained Pelham soils are in depressions.

Overcoming wetness is the main concern in managing the soils in this map unit. However, most of the soils on the higher lying areas are well suited to farming and to the commonly grown pines. Soils in depressions are seasonally ponded and are severely limited for most uses.

4. Coxville-Duplin-Goldsboro

Poorly drained soils that have a loamy surface layer and a clayey subsoil, and moderately well drained soils that have a sandy or loamy surface layer and a loamy or clayey subsoil

This map unit consists of poorly drained, nearly level soils in poorly defined drainageways and moderately well drained, nearly level soils on slightly higher low-lying areas of the uplands. Slope is 0 to 2 percent. Individual areas are near the central part and in the southern part of the county. The streams do not flow continuously, and most of the natural ponds are seasonally dry. The soils in this map unit are mainly in woodland; a few areas are in pasture. Other than roads and utilities, there is little manmade development. Degree of visual diversity is low.

This map unit makes up about 1 percent of Mitchell County. Coxville soils make up about 56 percent of the unit; Duplin soils, about 26 percent; Goldsboro soils, about 10 percent; and minor soils, about 8 percent.

Coxville soils are in drainageways. They are poorly drained and have a clayey subsoil. Typically, the surface layer is dark grayish brown fine sandy loam 5 inches thick. The subsoil to a depth of 80 inches or more is dominantly gray clay and has mainly yellowish, brownish, and reddish mottles.

Duplin soils are on low-lying areas of uplands. They are moderately well drained and have a clayey subsoil. Typically, the surface layer is grayish brown fine sandy loam 3 inches thick. The subsurface layer is pale brown fine sandy loam 9 inches thick. The subsoil is sandy clay and extends to a depth of 62 inches or more. The upper part is mainly light yellowish brown, the middle part is grayish brown and has yellowish brown and red mottles, and the lower part is gray and has yellowish brown, strong brown, and red mottles.

Goldsboro soils are on low-lying areas of uplands. They are moderately well drained and have a loamy subsoil. Typically, the surface layer is grayish brown loamy sand 8 inches thick. The subsoil is sandy clay loam and extends to a depth of 64 inches or more. The upper part is yellowish brown and has yellowish red mottles, the middle part is mainly brownish yellow and has strong brown and light brownish gray mottles, and the lower part is gray and has strong brown mottles.

Minor soils in this map unit are Bonneau and Grady. Moderately well drained Bonneau soils are on the slightly higher low-lying areas. Poorly drained Grady soils are in depressions.

Wetness is the main concern in managing the soils in this map unit. However, the soils are well suited to the commonly grown pines. Soils in the drainageways are severely limited for farming and most nonfarm uses. The soils on the higher lying areas are well suited to farming.

Nearly level to gently sloping soils on ridgetops and hillsides of uplands

Four map units in Mitchell County are made up of dominantly well drained soils on uplands. The soils in these map units are on ridgetops and hillsides. Slope is 0 to 8 percent. The soils have mainly a brownish sandy or loamy surface layer and a brownish or reddish loamy or clayey subsoil, or a brownish sandy surface layer, a thick, sandy subsurface layer, and a brownish or reddish loamy subsoil.

5. Wagram-Troup-Lucy

Well drained soils that have a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil

This map unit consists of nearly level to gently sloping soils on ridgetops and short hillsides. Slope is 0 to 8 percent. Individual areas are in the southwestern and northwestern parts of the county. Streams throughout the map unit do not flow continuously. The soils are used mainly for farming; pecans, truck crops, and woodland are also important. A few water areas are in this unit. Roads and farmsteads are common. Degree of visual diversity is moderate.

This map unit makes up about 26 percent of Mitchell County. Wagram soils make up about 40 percent of the unit; Troup soils, about 26 percent; Lucy soils, about 13 percent; and minor soils about 21 percent.

Wagram soils have a subsurface layer that extends to a depth of 20 to 40 inches and a mainly brownish subsoil. Typically, the surface layer is grayish brown loamy sand 6 inches thick. The subsurface layer is light yellowish brown loamy sand 22 inches thick. The subsoil to a depth of 82 inches or more is brownish yellow sandy loam in the upper few inches and yellowish brown sandy clay loam below.

Troup soils have a subsurface layer that extends to a depth of 40 inches or more. Typically, the surface layer is dark brown sand 4 inches thick. The subsurface layer is dominantly sand and extends to a depth of 53 inches. The upper part is yellowish brown, and the middle and lower parts are light yellowish brown. The subsoil to a depth of 82 inches or more is strong brown sandy loam in the upper few inches and strong brown sandy clay loam below.

Lucy soils have a subsurface layer that extends to a depth of 20 inches to 40 inches and a reddish subsoil. Typically, the surface layer is dark brown loamy sand 9 inches thick. The subsurface layer is loamy sand about 20 inches thick. The upper part is dark brown, and the lower part is reddish brown. The subsoil extends to a depth of 72 inches or more. It is yellowish red sandy loam in the upper part and red sandy clay loam below.

Minor soils in this map unit are Albany, Bonneau, Goldsboro, Norfolk, and Pelham. Well drained Norfolk soils are on ridgetops with the major soils. Somewhat poorly drained Albany soils and moderately well drained Bonneau and Goldsboro soils are on low-lying areas of the upland. Poorly drained Pelham soils are in depressions.

The soils in this map unit are well suited to most nonfarm uses. Low available water capacity limits farming and wood crops.

6. Tifton-Norfolk

Well drained soils that have a sandy or loamy surface layer and a loamy subsoil

This map unit consists of well drained, nearly level to gently sloping soils on smooth and convex ridgetops and short hillsides. Slope is 0 to 8 percent. Individual areas are throughout the eastern part of the county. Streams do not flow continuously. The soils are used mainly for farming; pecans, truck crops, and woodland are also important. There are many manmade ponds throughout the map unit. Roads and farmsteads are common. Degree of visual diversity is high.

This map unit makes up about 37 percent of Mitchell County. Tifton soils make up about 56 percent of the unit; Norfolk soils, about 15 percent; and minor soils, about 29 percent.

Tifton soils have a sandy surface layer and a loamy, mainly brownish subsoil that contains plinthite. Typically, the surface layer is dark grayish brown loamy sand 8 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 60 inches or more. The upper part is yellowish brown, the middle part is yellowish brown and has reddish and brownish mottles, and the lower part is brownish yellow and has strong brown mottles. Plinthite is below a depth of about 30 inches and makes up 5 to 10 percent of the lower part of the subsoil. Nodules of ironstone are on the surface and throughout the soil.

Norfolk soils have a sandy surface layer and a loamy, mainly brownish subsoil. Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsoil is dominantly yellowish brown sandy clay loam and extends to a depth of 72 inches or more.

Minor soils in this map unit are Bonneau, Carnegie, Clarendon, Duplin, Grady, and Pelham. Well drained Carnegie soils are on ridgetops and hillsides with the major soils. Moderately well drained Bonneau, Clarendon, and Duplin soils are on low-lying areas of the upland. Poorly drained Grady and Pelham soils are in depressions.

The main concern of management is controlling erosion on the very gently sloping and gently sloping soils. Soils in this map unit are well suited to most uses.

7. Norfolk-Orangeburg-Wagram

Well drained soils that have a sandy surface layer and a loamy subsoil or a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil

This map unit consists of well drained, nearly level to gently sloping soils on convex ridgetops and short hillsides. Slope is 0 to 8 percent. Individual areas are in the western part of the county. Streams do not flow continuously. The soils are used mainly for farming; pecans, truck crops, and woodland are also important. Water areas are few. Roads and farmsteads are common. Degree of visual diversity is moderate.

This map unit makes up about 15 percent of Mitchell County. Norfolk soils make up about 51 percent of the

unit; Orangeburg soils, about 25 percent; Wagram soils, about 8 percent; and minor soils, about 16 percent.

Norfolk soils have a sandy surface layer and a loamy subsoil. They are brownish throughout. Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsoil is dominantly yellowish brown sandy clay loam and extends to a depth of 72 inches or more.

Orangeburg soils have a brownish sandy surface layer and a mainly red loamy subsoil. Typically, the surface layer is brown loamy sand 8 inches thick. The subsoil extends to a depth of 72 inches or more. The upper few inches are yellowish red sandy loam, the middle part is red sandy clay loam, and the lower part is dominantly red sandy clay.

Wagram soils have a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil and is brownish throughout. Typically, the surface layer is grayish brown loamy sand 6 inches thick. The subsurface layer is light yellowish brown loamy sand 22 inches thick. The subsoil extends to a depth of 82 inches or more. It is brownish yellow sandy loam in the upper few inches and yellowish brown sandy clay loam below.

Minor soils in this map unit are Albany, Bonneau, Grady, Goldsboro, and Pelham. Moderately well drained Bonneau and Goldsboro soils and somewhat poorly drained Albany soils are on low-lying areas of the upland. Poorly drained Grady and Pelham soils are mainly in depressions.

Controlling erosion on the very gently sloping and gently sloping soils is a main concern in managing these soils. Increasing available water capacity is a concern in areas of thicker sand. Most of the soils in this map unit are well suited to most uses.

8. Esto-Norfolk-Goldsboro

Well drained soils that have a loamy surface layer and a clayey subsoil, and well drained and moderately well drained soils that have a sandy surface layer and a loamy subsoil

This map unit consists of nearly level to gently sloping soils on ridgetops and hillsides, and nearly level soils on low-lying areas of the upland. Slope is 0 to 8 percent. Individual areas are in the eastern part of the county. Streams do not flow continuously. The soils are used mainly for farming. Woodland also is important. There are a few manmade ponds in the unit. Roads and farmsteads are common. Degree of diversity is moderate.

This map unit makes up about 10 percent of Mitchell County. Esto soils make up about 25 percent of the unit; Norfolk soils, about 21 percent; Goldsboro soils, about 16 percent; and minor soils, about 38 percent.

The very gently sloping and gently sloping Esto soils are on ridgetops and hillsides. They are well drained and have a clayey subsoil. Typically, the surface layer is dark grayish brown sandy loam 5 inches thick. The subsoil is dominantly clay and extends to a depth of 65 inches or more. The upper part is yellowish brown and has reddish mottles, and the lower part is mottled reddish, grayish, and brownish.

The nearly level to gently sloping Norfolk soils are on ridgetops and hillsides. They are well drained and have a loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 72 inches or more. It is yellowish brown throughout and has strong brown mottles in the lower part.

The nearly level Goldsboro soils are on low-lying areas of uplands. They are moderately well drained and have a loamy subsoil. Typically, the surface layer is grayish brown loamy sand 8 inches thick. The subsoil is sandy clay loam and extends to a depth of 64 inches or more. The upper part is yellowish brown and has yellowish red mottles, the middle part is mainly brownish yellow and has strong brown and light brownish gray mottles, and the lower part is gray and has strong brown mottles.

Minor soils in this map unit are Grady, Pelham, and Susquehanna. Poorly drained Grady and Pelham soils are in depressions. Somewhat poorly drained Susquehanna soils are on ridgetops and hillsides with the major soils.

Controlling erosion is the main concern in managing the very gently sloping and gently sloping soils. Most of the soils on ridgetops and hillsides are limited for nonfarm uses because of shrink-swell potential and the high clay content in the subsoil. The soils on low-lying areas are limited by seasonal wetness; however, they are well suited to farming.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. A soil is well suited if it has properties that are favorable for an intended use. A soil is moderately suited if it has properties that require special planning and management to obtain satisfactory performance. A soil is poorly suited if it has properties that are unfavorable. More information on each map unit, or soil, is given under "Use and Management of the Soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Tifton loamy sand, 2 to 5 percent slopes, is one of several phases in the Tifton series.

Some map units are made up of two or more major soils. These map units are called soil complexes.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the components are somewhat similar in all areas. Meggett-Muckalee complex is an example.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

Soil Descriptions

AdA—Albany sand, 0 to 2 percent slopes. This somewhat poorly drained, nearly level soil is in smooth, low-lying areas on uplands. Areas range from 5 to 30 acres in size.

Typically, the surface layer is dark gray sand 7 inches thick. The subsurface layer is sand that extends to a depth of 53 inches. The upper part is dominantly grayish brown, and the lower part is light yellowish brown and has yellowish brown and light gray mottles. The subsoil is dominantly sandy clay loam and extends to a depth of 80 inches or more. It is mottled pale brown, light gray, light yellowish brown, and yellowish brown.

This soil is low in natural fertility and organic matter. Reaction ranges from very strongly acid to medium acid throughout except for the surface layer in limed areas. Permeability is rapid in the surface layer and the thick subsurface layer and moderate in the subsoil. Available water capacity is very low. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep except during winter and early spring when the water table is at a depth of 1.0 foot to 2.5 feet.

Included with this soil in mapping are small areas of Bonneau, Pelham, Troup, and Wagram soils.

This Albany soil is only moderately suited to farming because of wetness. This limitation can be overcome by drainage. Also, the very low available water capacity limits yields. Returning crop residue to the soil is effective in retaining moisture.

This soil is well suited to loblolly pine and slash pine. However, seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation commonly can be overcome by

using modified or special implements or by performing operations during the drier seasons. Drainage and the use of suited species commonly increase the survival rate of the seedlings.

This soil is poorly suited to most urban uses because of wetness. Wetness can be reduced by drainage. This soil is poorly suited to recreation development because the soil is too sandy and because it is wet during the winter and early spring.

This soil is in capability subclass IIIw. The woodland ordination symbol is 2w.

BgA—Bigbee sand, 0 to 2 percent slopes. This excessively drained, nearly level soil is on stream terraces of the Flint River and its major tributaries. It occasionally is flooded for brief periods from winter to early spring. Areas range from 10 to 200 acres in size.

Typically, the surface layer is dark grayish brown sand 8 inches thick. The underlying layers to a depth of 96 inches or more are dominantly sand. The upper layers are mainly light yellowish brown and the lower layers are very pale brown; small pockets of clean and white grains of sand are in most layers.

This soil is low in natural fertility and organic matter. Reaction ranges from very strongly acid to medium acid throughout except for the surface layer in limed areas. Permeability is rapid. Available water capacity is low. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small intermingled areas of Maxton and Suffolk soils.

This Bigbee soil is poorly suited to farming because of the low available water capacity. Returning crop residue to the soil helps retain some soil moisture. Yields for the crops commonly grown can be increased by irrigation.

This soil is well suited to loblolly pine, slash pine, and longleaf pine. However, sandiness and loose consistence throughout limit the use of conventional equipment. This limitation commonly can be overcome by using modified or special equipment in dry periods, or by performing operations during the wetter seasons. Also, the low available water capacity increases seedling mortality. Using suitable drought-hardy species and reducing the number of competing plants commonly increases the survival rate of the seedlings.

This soil is poorly suited to most recreation development because it is too sandy. Occasional flooding severely limits urban uses. This limitation can be overcome only by flood control.

This soil is in capability subclass IIIs. The woodland ordination symbol is 2s.

BoA—Bonneau loamy sand, 0 to 2 percent slopes. This moderately well drained, nearly level soil is on low-lying areas on uplands. Areas range from 5 to 80 acres in size.

Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsurface layer, which extends to a depth of 34 inches, is loamy sand that is very pale brown. The subsoil extends to a depth of 64 inches or more. The upper part is mainly light yellowish brown sandy loam, the middle part is brownish yellow sandy clay loam that has white and yellowish brown mottles, and the lower part is light yellowish brown sandy clay loam that has yellowish brown and light gray mottles.

This soil is low in natural fertility and organic matter. Reaction ranges from very strongly acid to medium acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is low. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep except from winter to mid-spring when the water table is at a depth of 3.5 to 5.0 feet.

Included with this soil in mapping are small areas of Albany, Goldsboro, and Pelham soils.

This Bonneau soil is only moderately suited to farming because of the low available water capacity. Returning crop residue to the soil helps overcome this limitation. During dry seasons, this soil responds favorably to irrigation.

This soil is well suited to loblolly pine and slash pine. However, the sandiness and very friable consistence in the upper few feet of this soil limit the use of conventional equipment. These limitations commonly can be overcome by using modified or special equipment in dry periods or by performing operations during the wetter seasons. Also, the low available water capacity increases seedling mortality. Using suitable drought-hardy species and reducing plant competition commonly increase the survival rate of the seedlings.

This soil is well suited to most urban and recreation uses. However, seasonal wetness limits the use of this soil for sanitary facilities. This limitation commonly can be reduced by drainage.

This soil is in capability subclass IIs. The woodland ordination symbol is 2s.

CaB2—Carnegie sandy loam, 3 to 5 percent slopes, eroded. This well drained, very gently sloping soil is on ridgetops and hillsides on uplands. The surface layer is a mixture of the original surface soil and the upper part of the subsoil. In most places, slopes are undulating and commonly have rills or galled spots, shallow gullies, and an occasional deep gully. Areas range from 5 to 15 acres in size.

Typically, the surface layer is dark grayish brown sandy loam about 5 inches thick. The subsoil is dominantly sandy clay that extends to a depth of 65 inches or more. The upper part is strong brown, the middle part is strong brown and has red and yellowish brown mottles, and the lower part is mottled yellowish brown, red, very pale brown, strong brown, brownish

yellow, and light gray. Nodules of ironstone are in the surface layer and throughout the upper and middle parts of the subsoil. The content of plinthite is 5 to 12 percent by volume below a depth of about 20 inches.

This soil is low in natural fertility and organic matter. Reaction ranges from very strongly acid to medium acid throughout except for the surface layer in limed areas. Permeability is moderately slow, and available water capacity is medium. Runoff is rapid. Tilth is good, and the root zone is deep.

Included with this soil in mapping are small areas of Esto, Orangeburg, and Tifton soils. Also included are eroded soils that have a sandy clay loam surface layer.

This Carnegie soil is only moderately suited to farming because of rapid runoff and a gullied landscape. Good tilth can be maintained in most places by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage and the use of cover crops, including grasses and legumes help reduce runoff and control erosion.

This soil is well suited to slash pine and loblolly pine. Although this soil has no significant limitations for woodland use, performing operations on the contour to keep soil erosion to a minimum is recommended.

This soil is well suited to most urban uses. However, moderately slow permeability in the subsoil limits its use for septic tank absorption fields. Commonly, this limitation can be overcome by practices such as increasing the size of the absorption fields. This soil is only moderately suited to most recreation uses because the subsoil has moderately slow permeability.

This soil is in capability subclass IIIe. The woodland ordination symbol is 2o.

CaC2—Carnegie sandy loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on hillsides on uplands. The surface layer is a mixture of the original surface soil and the upper part of the subsoil. In most places, slopes are short and irregular and commonly have rills, galled spots, and an occasional gully. Areas range from 5 to 15 acres in size.

Typically, the surface layer is dark grayish brown sandy loam 5 inches thick. The subsoil is dominantly sandy clay that extends to a depth of 62 inches or more. The upper part is strong brown, the middle part is strong brown and has red and yellowish brown mottles, and the lower part is mottled yellowish brown, red, very pale brown, strong brown, brownish yellow, and light gray. Nodules of ironstone are in the surface layer and throughout the upper and middle parts of the subsoil. The content of plinthite is 5 to 12 percent by volume below a depth of about 20 inches.

This soil is low in natural fertility and organic matter. Reaction ranges from very strongly acid to medium acid throughout except for the surface layer in limed areas. Permeability is moderately slow, and available water capacity is medium. Runoff is rapid. Tilth is good, and the root zone is deep.

Included with this soil in mapping are small areas of Esto, Orangeburg, and Tifton soils. Also included are eroded soils that have a sandy clay loam surface layer.

This Carnegie soil is poorly suited to row crops because of rapid runoff and the short, irregular, somewhat gullied slopes. However, it is moderately suited to hay and pasture. Good tilth can be maintained by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Conservation tillage and the use of cover crops, including grasses and legumes, help reduce runoff and control erosion.

This soil is well suited to slash pine and loblolly pine. Although this soil has no significant limitations for woodland use, performing operations on the contour to keep erosion to a minimum is recommended.

This soil is well suited to most urban uses. However, moderately slow permeability in the subsoil limits the use of this soil for septic tank absorption fields. Commonly, this limitation can be overcome by special practices such as increasing the size of the absorption fields. This soil is only moderately suited to most recreation uses because the subsoil has moderately slow permeability.

This soil is in capability subclass IVe. The woodland ordination symbol is 2o.

CnA—Clarendon loamy sand, 0 to 2 percent slopes. This moderately well drained, nearly level soil is on lower lying uplands. Areas range from 5 to 30 acres in size.

Typically, the surface layer is very dark grayish brown loamy sand 8 inches thick. The subsurface layer to a depth of 17 inches is light yellowish brown loamy sand. The subsoil is dominantly sandy clay loam and extends to a depth of 72 inches or more. It is brownish yellow in the upper few inches. Below that, it is brownish yellow or yellowish brown and has light gray, strong brown, and red mottles. A significant amount of plinthite is below a depth of 35 inches and makes up 5 to 10 percent of the lower part of the subsoil. Nodules of ironstone are in the upper part of the soil.

This soil is low in natural fertility and organic matter. Reaction ranges from very strongly acid to medium acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep except during winter and early spring when the water table is at a depth of 1.5 to 2.5 feet.

Included with this soil in mapping are small areas of Bonneau and Tifton soils.

This Clarendon soil is well suited to farming. However, wetness restricts this use and drainage is needed in most places.

This soil is well suited to loblolly pine, slash pine, and yellow poplar. However, seasonal wetness limits the use of conventional equipment. This limitation commonly can be overcome by using modified or special equipment or by performing operations during the drier seasons.

This soil is only moderately suited to most urban and recreation uses because of wetness. This limitation commonly can be reduced by drainage.

This soil is in capability subclass IIw. The woodland ordination symbol is 2w.

Co—Coxville fine sandy loam. This poorly drained, nearly level soil is in poorly defined drainageways. Slope is 0 to 2 percent. Areas range from 30 to 120 acres in size.

Typically, the surface layer is very dark gray fine sandy loam 8 inches thick. The subsoil extends to a depth of 62 inches or more. It is dominantly gray sandy clay and has mainly yellowish, brownish, and reddish mottles.

This soil is low in natural fertility and organic matter. Reaction is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderately slow and available water capacity is high. The root zone is deep except from winter to mid-spring when the water table is at the surface or within a depth of 1.5 feet.

Included with this soil in mapping are small areas of Bonneau, Duplin, Grady, and Pelham soils.

This Coxville soil is well suited to loblolly pine and slash pine. However, seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation commonly can be overcome by using modified or special implements, or by performing operations during the drier seasons. Drainage, bedding, reducing the number of competing plants, and using suitable species commonly increases the survival rate of the seedlings.

This soil is poorly suited to farming and to urban and recreation uses because of wetness. Unless drainage outlets are available, this limitation is difficult to overcome.

This soil is in capability subclass IVw. The woodland ordination symbol is 2w.

DpA—Duplin fine sandy loam, 0 to 2 percent slopes. This moderately well drained, nearly level soil is on low-lying uplands. Areas range from 10 to 50 acres in size.

Typically, the surface layer is grayish brown fine sandy loam 3 inches thick. The subsurface layer extends to a depth of 12 inches. It is pale brown fine sandy loam. The subsoil is sandy clay and extends to a depth of 62 inches or more. The upper part is mainly light yellowish brown, the middle part is grayish brown and has yellowish brown and red mottles, and the lower part is gray and has yellowish brown, strong brown, and red mottles.

This soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderately slow, and available water capacity is medium. Tilth is good. The root zone is deep, except from winter to mid-spring when the water table is at a depth of 1.0 foot and 2.5 feet.

Included with this soil in mapping are a few small areas of Bonneau, Clarendon, and Goldsboro soils.

This Duplin soil is well suited to farming. However, this use is somewhat restricted by wetness, and drainage is needed in most places.

This soil is well suited to loblolly pine and slash pine. However, seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation commonly can be overcome by using modified or special implements or by performing operations during the drier seasons. Drainage and the use of suitable species commonly increases the survival rate of the seedlings.

This soil is poorly suited to most urban uses and only moderately suited to recreation uses because of wetness. This limitation can be reduced by drainage.

This soil is in capability subclass IIw. The woodland ordination symbol is 2w.

EnB—Esto-Norfolk complex, 2 to 5 percent slopes. This complex consists of well drained, very gently sloping soils on ridgetops and hillsides on uplands. The areas of Esto soil and Norfolk soil are so intermingled that they could not be mapped separately at the scale selected. Areas range from 20 to 100 acres in size.

Esto sandy loam makes up about 45 percent of each mapped area. Typically, the surface layer is dark grayish brown sandy loam 5 inches thick. The subsoil is dominantly clay and extends to a depth of 65 inches or more. The upper part is yellowish brown and has reddish mottles, and the lower part is mottled reddish, grayish, and brownish.

This Esto soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and available water capacity is medium. Runoff is moderate. Tilth is good and the root zone is deep.

Norfolk loamy sand makes up about 35 percent of each mapped area. Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 72 inches or more. It is yellowish brown and has strong brown mottles in the lower part.

This Norfolk soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked

throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this complex in mapping are small areas of Carnegie and Susquehanna soils.

This Esto-Norfolk complex is only moderately suited to farming. The soils that have a firm, slowly permeable subsoil limit the suitability of this complex for cropland. Good tilth can be maintained by returning crop residue to the soils. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage and the use of cover crops, including grasses and legumes, help to reduce runoff and control erosion.

Much of this complex is only moderately suited to loblolly pine and slash pine because the soils dominantly have a firm, slowly permeable subsoil. Although these soils have no significant limitations for woodland use, performing operations on the contour to keep soil erosion to a minimum is recommended.

In most places the soils in this complex are only moderately suited to urban and recreation uses. Slow permeability and shrink-swell potential in the subsoil are the main limitations.

The soils in this complex are in capability subclass IIIe. The woodland ordination symbol for the Esto soil is 3o, and for the Norfolk soil is 2o.

EnC—Esto-Norfolk complex, 5 to 8 percent slopes. This complex consists of well drained, gently sloping soils on ridgetops and hillsides on uplands. The areas of Esto soil and Norfolk soil are so intermingled that they could not be mapped separately at the scale selected. Areas range from 10 to 40 acres in size.

Esto sandy loam makes up about 45 percent of each mapped area. Typically, the surface layer is dark grayish brown sandy loam 5 inches thick. The subsoil is dominantly clay and extends to a depth of 65 inches or more. The upper part is yellowish brown and has reddish mottles, and the lower part is mottled yellowish, reddish, and grayish.

This Esto soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and available water capacity is medium. Runoff is rapid. Tilth is good and the root zone is deep.

Norfolk loamy sand makes up about 35 percent of each mapped area. Typically, the surface layer is grayish brown loamy sand 10 inches thick. The subsoil to a depth of 72 inches is yellowish brown sandy clay loam.

This Norfolk soil is low in natural fertility and organic matter. Reaction is strongly or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this complex in mapping are small areas of Carnegie and Susquehanna soils.

This Esto-Norfolk complex is poorly suited to row crops; however, it is moderately suited to hay and pasture. Much of this complex is limited for row crops because the soils have a firm, slowly permeable subsoil, and in many places erosion is a severe hazard if cultivated crops are grown.

Much of this complex is only moderately suited to loblolly pine and slash pine because the soils dominantly have a firm, slowly permeable subsoil. Although these soils have no significant limitations for woodland use, performing operations on the contour to keep soil erosion to a minimum is recommended.

In most places the soils in this complex are only moderately suited to urban and recreation uses. Slow permeability and shrink-swell potential in the subsoil are the main limitations.

The soils in this complex are in capability subclass IVe. The woodland ordination symbol for the Esto soil is 3o, and for the Norfolk soil is 2o.

EoD—Esto-Orangeburg complex, 8 to 15 percent slopes. This complex consists of well drained, sloping soils on upland escarpments. The areas of Esto soil and Orangeburg soil are so intermingled that they could not be mapped at the scale selected. Areas range from 10 to 40 acres in size.

Esto sandy loam makes up 65 percent of each mapped area. Typically, the surface layer is dark grayish brown sandy loam 5 inches thick. The subsoil is sandy clay and extends to a depth of 65 inches or more. The upper part is yellowish brown and has reddish mottles, and the lower part is mottled grayish, reddish, and brownish.

This Esto soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and available water capacity is medium. Runoff is rapid. Tilth is good, and the root zone is deep.

Orangeburg loamy sand makes up 25 percent of each mapped area. Typically, the surface layer is brown loamy sand 6 inches thick. The subsoil extends to a depth of 65 inches or more. In the upper few inches it is yellowish red sandy loam, and below that it is red sandy clay loam. Brown mottles are in the lower part.

This Orangeburg soil is medium in natural fertility and low in organic matter. Reaction is strongly acid and very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this complex in mapping are soils that have a surface layer more than 20 inches thick. Also included are areas that have about 15 percent chert in

the soil. Rock outcrop is common and is included in the mapping.

This Esto-Orangeburg complex is poorly suited to row crops because of slope. However, it is moderately suited to hay and pasture.

Much of this complex is only moderately suited to loblolly pine and slash pine because the soils dominantly have a firm, slowly permeable subsoil. Although these soils have no significant limitations for woodland use, performing operations on the contour to keep soil erosion to a minimum is recommended.

The soils in this complex are only moderately suited to urban and recreation uses because of slope. Slow permeability and shrink-swell potential in the subsoil are additional limitations for soils in much of the complex.

The soils in this complex are in capability subclass VIe. The woodland ordination symbol for the Esto soil is 3o, and the Orangeburg soil is 2o.

EsB—Esto-Susquehanna sandy loams, 2 to 5 percent slopes. This complex consists of well drained and somewhat poorly drained, very gently sloping soils on ridgetops and hillsides on uplands. The areas of Esto soil and Susquehanna soil are so intermingled that they could not be mapped separately at the scale selected. Areas range from 20 to 100 acres in size.

Esto sandy loam makes up about 50 percent of each mapped area. Typically, the surface layer is dark grayish brown sandy loam 5 inches thick. The subsoil is dominantly clay and extends to a depth of 65 inches or more. The upper part is yellowish brown and has reddish mottles, and the lower part is mottled reddish, grayish, and brownish.

This Esto soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and available water capacity is medium. Runoff is medium. Tilth is good, and the root zone is deep.

Susquehanna sandy loam makes up about 35 percent of each mapped area. Typically, the surface layer is dark grayish brown sandy loam 4 inches thick. The subsoil is clay and extends to a depth of 71 inches or more. The upper part is red and yellowish red and has light gray mottles, and the lower part is mainly mottled light gray, yellowish red, and red.

This Susquehanna soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is very slow, and available water capacity is high. Runoff is moderate, and tilth is good. The root zone is somewhat restricted by the very firm, clayey subsoil. This soil is wet during periods of high rainfall.

Included with this complex in mapping are small areas of Carnegie and Norfolk soils.

This Esto-Susquehanna complex is poorly suited to row crops; however, it is moderately suited to hay and pasture. This complex is limited for row crops because the soils have a firm or very firm, slowly permeable subsoil. Erosion is a severe hazard if cultivated crops are grown.

This complex is only moderately suited to loblolly pine and slash pine because the soils have a firm and very firm, slowly and very slowly permeable subsoil. In places, subsoiling or chiseling after harvest operations accelerates revegetation or improves the sites for replanting. Performing operations on the contour keeps soil erosion to a minimum.

In most places the soils in this complex are moderately suited to urban and recreation uses. Slow or very slow permeability and the shrink-swell potential of the subsoil are the main limitations.

The soils in this complex are in capability subclass IVe. The woodland ordination symbol for the Esto soil is 3o, and for the Susquehanna soil is 3c.

EsC—Esto-Susquehanna sandy loams, 5 to 8 percent slopes. This complex consists of well drained and somewhat poorly drained, gently sloping soils on ridgetops and hillsides on uplands. The areas of Esto soil and Susquehanna soil are so intermingled that they could not be mapped separately at the scale selected. Areas range from 10 to 40 acres in size.

Esto sandy loam makes up about 50 percent of each mapped area. Typically, the surface layer is dark grayish brown sandy loam 4 inches thick. The subsoil is clay and extends to a depth of 65 inches or more. The upper part is yellowish brown and has reddish mottles, and the lower part is mottled grayish, reddish, and brownish.

This Esto soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and available water capacity is medium. Runoff is rapid. Tilth is good, and the root zone is deep.

Susquehanna sandy loam makes up about 35 percent of each mapped area. Typically, the surface layer is dark grayish brown sandy loam 4 inches thick. The subsoil is clay and extends to a depth of 71 inches or more. The upper part is red, and the lower part is mottled grayish and reddish.

This Susquehanna soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is very slow, and available water capacity is high. Runoff is rapid, and tilth is good. The root zone is somewhat restricted by the very firm, clayey subsoil. This soil is wet during periods of high rainfall.

Included with this complex in mapping are small areas of Carnegie and Norfolk soils.

This Esto-Susquehanna complex is poorly suited to row crops; however, it is moderately suited to hay and

pasture. This complex is limited because the soils have a firm or very firm, slowly permeable subsoil. Erosion is a severe hazard if cultivated crops are grown.

This complex is only moderately suited to loblolly pine and slash pine because the soils have a firm and very firm, slowly and very slowly permeable subsoil. In places, subsoiling or chiseling after harvest operations accelerates revegetation or improves the site for replanting. Performing operations on the contour keeps soil erosion to a minmum.

In most places the soils in this complex are moderately suited to urban and recreation uses. Slow or very slow permeability and the shrink-swell potential of the subsoil are the main limitations.

The soils in this complex are in capability subclass VIe. The woodland ordination symbol for the Esto soil is 3o, and for the Susquehanna soil is 3c.

FeA—Faceville sandy loam, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on uplands. Areas range from 5 to 30 acres in size.

Typically, the surface layer is brown sandy loam 6 inches thick. The subsoil extends to a depth of 65 inches or more. It is red sandy clay throughout except for the brownish and reddish mottles in the lower part.

This soil is low in natural fertility and organic matter. Reaction is very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Greenville, Orangeburg, and Red Bay soils.

This Faceville soil is well suited to farming. During dry seasons it responds favorably to irrigation, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Conservation tillage and the use of cover crops, including grasses and legumes, help conserve moisture and maintain organic matter.

This soil is moderately suited to slash pine and loblolly pine. It has no significant limitations for woodland use or management.

This soil is well suited to most urban and recreational uses. The clayey subsoil limits a few uses.

This soil is in capability class I. The woodland ordination symbol is 3o.

FeB—Faceville sandy loam, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides on uplands. Slopes are smooth and convex. Areas range from 5 to 30 acres in size.

Typically, the surface layer is brown sandy loam 6 inches thick. The subsoil extends to a depth of 65 inches or more. It is yellowish red sandy clay loam in the upper few inches and red sandy clay below. It has brownish and reddish mottles in the lower part.

This soil is low in natural fertility and organic matter. It is very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Greenville, Orangeburg, and Red Bay soils.

This Faceville soil is well suited to farming. During dry seasons, this soil responds favorably to irrigation and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops, including grasses and legumes, and terracing and contouring help reduce runoff and control erosion.

This soil is moderately suited to slash pine and loblolly pine. Although this soil has no significant limitations for woodland use, performing operations on the contour to keep soil erosion to a minimum is recommended.

This soil is well suited to most urban and recreation uses. The clayey subsoil limits a few uses.

This soil is in capability subclass IIe. The woodland ordination symbol is 3o.

FsC2—Faceville sandy clay loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on hillsides on uplands. The surface layer is a mixture of part of the original surface soil and the upper part of the subsoil. It commonly has rills, galled spots, shallow gullies, and an occasional deep gully. Slopes are convex. Areas range from 5 to 50 acres in size.

Typically, the surface layer is reddish brown sandy clay loam 6 inches thick. The subsoil is mainly red and extends to a depth of 65 inches or more. It is sandy clay throughout except for the lower part, which is clay and has brownish mottles.

This soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is poor because of the sandy clay loam surface layer. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Greenville and Orangeburg soils.

This Faceville soil is only moderately suited to row crops because of slope and poor tilth. However, it is well suited to hay and pasture. Tilth can be improved by growing grasses and returning crop residue to the soil. Conservation tillage, the use of cover crops, including grasses and legumes, and terracing and contouring help reduce runoff and control erosion.

This soil is moderately suited to slash pine and loblolly pine. Although this soil has no significant limitations for woodland use, performing operations on the contour to keep soil erosion to a minimum is recommended.

This soil is well suited to most urban and recreation uses. The clayey subsoil limits a few uses.

This soil is in capability subclass IVe. The woodland ordination symbol is 3o.

GoA—Goldsboro loamy sand, 0 to 2 percent slopes. This moderately well drained, nearly level soil is on low-lying uplands. Areas range from 10 to 50 acres in size.

Typically, the surface layer is grayish brown loamy sand 8 inches thick. The subsoil is sandy clay loam and extends to a depth of 64 inches or more. The upper part is yellowish brown and has yellowish red mottles. The middle part is mainly brownish yellow and has strong brown and light brownish gray mottles, and the lower part is gray and has strong brown mottles.

This soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep except from winter to mid-spring when the water table is at a depth of 2.0 to 3.0 feet.

Included with this soil in mapping are a few small areas of Bonneau, Norfolk, and Orangeburg soils.

This Goldsboro soil is well suited to farming. However, it is somewhat limited because of wetness, and drainage is needed in most places.

This soil is well suited to slash pine and loblolly pine. However, seasonal wetness limits the use of conventional equipment. This limitation commonly can be overcome by using modified or special equipment or by performing operations during the drier seasons.

This soil is only moderately suited to most urban and recreation uses because of wetness. This limitation commonly can be reduced by drainage.

This soil is in capability subclass IIw. The woodland ordination symbol is 2w.

Gr—Grady fine sandy loam. This poorly drained, nearly level soil is in depressions on uplands. It is seasonally ponded from winter to early summer. Slope is 0 to 2 percent. Areas range from 5 to 150 acres in size.

Typically, the surface layer is very dark gray fine sandy loam 5 inches thick. The subsoil extends to a depth of 72 inches or more. It is mainly gray clay that has yellowish brown mottles in the lower part.

This soil is low in natural fertility and medium in organic matter. Reaction is very strongly acid or strongly acid throughout except for the surface layers in limed areas. Permeability is slow, and available water capacity is medium. Tilth is good. The root zone is deep, except from winter to early summer when the soil is commonly ponded.

Included with this soil in mapping are small intermingled areas of Pelham soils.

Baldcypress, blackgum, and water oak are the common trees; some areas are dominated by water-tolerant shrubs and grasses. Ponding is the main limitation to the use of equipment and to the survival of seedlings other than the common water-tolerant species.

This Grady soil is poorly suited to farming and to most urban and recreation uses because of ponding. Unless outlets are available for drainage, this limitation is difficult to overcome.

This soil is in capability subclass Vw. The woodland ordination symbol is 4w.

GsA—Greenville sandy loam, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on uplands. Slopes are smooth and convex. Areas range from 10 to 100 acres in size.

Typically, the surface layer is dark reddish brown sandy loam 9 inches thick. The subsoil is dark red sandy clay that extends to a depth of 72 inches or more.

This soil is low in natural fertility and low in organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. This soil has good tilth. However, compaction and clodding are problems if the soil is tilled when too wet. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few areas of Greenville sandy loam, 2 to 5 percent slopes. Also included are small areas of Faceville, Orangeburg, and Red Bay soils.

This Greenville soil is well suited to farming. During dry seasons, it responds favorably to irrigation, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Conservation tillage and the use of cover crops, including grasses and legumes, help to conserve moisture and maintain the organic matter content.

This soil is moderately suited to loblolly pine and slash pine. It has no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses. The clayey subsoil limits a few uses.

This soil is in capability class I. The woodland ordination symbol is 3o.

GsB—Greenville sandy loam, 2 to 5 percent slopes. This well drained, very gently sloping soil is on broad ridgetops on uplands. Slopes are smooth and convex. Areas range from 10 to 200 acres in size.

Typically, the surface layer is dark reddish brown sandy loam 9 inches thick. The subsoil is dark red and

extends to a depth of 72 inches or more. It is sandy clay loam in the upper few inches and sandy clay below.

This soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and the available water capacity is medium. This soil has good tilth. However, compaction and clodding are problems if the soil is tilled when too wet. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few intermingled areas of similar soils that have a sandy clay loam surface layer. Also, a few small areas of Faceville, Orangeburg, and Red Bay soils are included in mapping.

This Greenville soil is well suited to farming. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops, including grasses and legumes, and terracing and contouring help reduce runoff and control erosion.

This soil is moderately suited to loblolly pine and slash pine. Although there are no significant limitations for woodland use, performing operations on the contour to keep soil erosion to a minimum is recommended.

This soil is well suited to most urban and recreation uses. The clayey subsoil limits a few uses.

This soil is in capability subclass IIe. The woodland ordination symbol is 3o.

HvA—Hornsville fine sandy loam, 0 to 2 percent slopes. This moderately well drained, nearly level soil is on terraces of the larger streams. It is rarely flooded. Areas range from 5 to 55 acres in size.

Typically, the surface layer is dark grayish brown fine sandy loam 6 inches thick. The subsoil extends to a depth of 43 inches. The upper part is brown sandy loam, the middle part is mainly yellowish red sandy clay, and the lower part is strong brown sandy clay loam that has reddish and grayish mottles. The underlying layer to a depth of 62 inches or more is strong brown sandy loam that has reddish and grayish mottles.

This soil is low in natural fertility and organic matter. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderately slow, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep except from winter to mid-spring, when the water table is at a depth of 2.5 to 3.5 feet.

Included with this soil in mapping are a few small areas of Lakeland, Lucy, Suffolk, and Wahee soils.

This Hornsville soil is well suited to farming. However, it is somewhat limited because of wetness, and drainage is needed in most places.

This soil is well suited to loblolly pine and slash pine. However, seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation commonly can be overcome by using modified or special equipment, or by performing operations during the drier seasons. Drainage and the use of suitable species commonly increase the survival rate of the seedlings.

This soil is poorly suited to most urban uses because of flooding or wetness. It is moderately suited to most recreational uses. Drainage and prevention of overflow can overcome the limitations in most places.

This soil is in capability subclass IIw. The woodland ordination symbol is 2w.

KeC—Kershaw sand, 2 to 12 percent slopes. This excessively drained, very gently sloping to sloping soil is on dunes on uplands. Slopes are irregular and convex. Areas range from 10 to 100 acres in size.

Typically, this soil is sand throughout. The surface layer is dark grayish brown and is 2 inches thick. The underlying layers to a depth of 80 inches are brownish yellow, light yellowish brown, and yellowish brown.

This soil is very low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid. Permeability is very rapid, and available water capacity is very low. Tilth is good, and the root zone is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Lakeland and Troup soils.

This Kershaw soil is rarely used for farming because of the very low available water capacity.

This soil is poorly suited to slash pine and longleaf pine. Because this soil has a very low available water capacity, seedling mortality is a concern. Leaving additional seed trees or leaving more basal area in shelterwood cuts commonly helps increase seed production. Because of the sandiness of the soil, the use of conventional equipment commonly is limited. Using special implements or performing operations during the wetter seasons helps overcome the equipment limitations.

This soil is well suited to most urban uses. However, seepage is a limitation for most sanitary facilities. Because this soil is so sandy, it is poorly suited to recreation development.

This soil is in capability subclass VIIs. The woodland ordination symbol is 5s.

LkB—Lakeland sand, 2 to 5 percent slopes. This excessively drained, very gently sloping soil is on broad ridgetops on uplands. Slopes are smooth and convex. Areas range from 5 to 200 acres in size.

Typically, this soil is sand throughout. The surface layer is dark grayish brown and is 3 inches thick. The underlying layers to a depth of 82 inches or more are

mainly brownish yellow. White mottles are in the lower layer.

This soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is very rapid, and available water capacity is low. The soil has good tilth. The deep root zone is easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Albany and Troup soils.

This Lakeland soil is poorly suited to farming because of the low available water capacity and low fertility. Returning crop residue to the soil is effective in retaining moisture. Yields for crops commonly grown on this soil can be increased by irrigation.

This soil is moderately suited to loblolly pine and slash pine. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting procedures using suitable drought-hardy species and reducing the number of competing plants commonly increase the survival rate of seedlings. Because of the sandiness of this soil the use of conventional equipment commonly is limited. Using special implements or performing operations during the wetter seasons helps overcome the equipment limitation.

This soil is well suited to most urban uses. However, seepage is a limitation for most sanitary facilities. Because it is so sandy, this soil is poorly suited to most recreation development.

This soil is in capability subclass IVs. The woodland ordination symbol is 4s.

LmB—Lucy loamy sand, 0 to 5 percent slopes. This well drained nearly level and very gently sloping soil is on broad ridgetops on uplands. Slopes are smooth and convex. Areas range from 10 to 300 acres in size.

Typically, the surface layer is dark brown loamy sand 9 inches thick. The subsurface layer extends to a depth of 29 inches and is loamy sand. It is dark brown in the upper part and yellowish red in the lower part. The subsoil to a depth of 72 inches or more is yellowish red sandy loam in the upper part and red sandy clay loam below.

This soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is low. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small intermingled areas of Norfolk, Orangeburg, Troup, and Wagram soils.

This Lucy soil is only moderately suited to farming because of the low available water capacity. Returning crop residue to the soil is effective in retaining soil moisture. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained.

This soil is moderately suited to loblolly pine and slash pine. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting procedures, using suitable drought-hardy species, and reducing the number of competing plants commonly increases the survival rate of the seedlings. Because of the sandiness of this soil, the use of conventional equipment commonly is limited. Using special Implements or performing operations during the wetter seasons help overcome the equipment limitation.

This soil is well suited to most urban uses. However, seepage is a limitation for some sanitary facilities. Because it is so sandy, this soil is only moderately suited to recreation uses.

This soil is in capability subclass IIs. The woodland ordination symbol is 3s.

LmC—Lucy loamy sand, 5 to 8 percent slopes. This well drained, gently sloping soil is mainly on hillsides on uplands. Slopes commonly are smooth and convex. Areas range from 10 to 40 acres in size.

Typically, the surface layer is dark brown loamy sand about 67 inches thick. The subsurface layer extends to a depth of 29 inches and is loamy sand. It is dark brown in the upper part and yellowish red in the lower part. The subsoil is red and extends to a depth of 60 inches or more. It is sandy loam in the upper few inches and sandy clay loam below.

This soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and the available water capacity is low. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small intermingled areas of Orangeburg, Troup, and Wagram soils.

This Lucy soil is only moderately suited to farming because of low available water capacity and slope. Returning crop residue to the soil is effective in retaining soil moisture.

This soil is moderately suited to loblolly pine and slash pine. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting procedures, using suitable drought-hardy species, and reducing the number of competing plants commonly increase the survival rate of the seedlings. Because of the sandiness of this soil, the use of conventional equipment commonly is limited. Use of special implements or performing operations during the wetter seasons helps overcome the equipment limitation.

This soil is well suited to most urban uses. However, seepage is a limitation for some sanitary facilities.

Because it is so sandy, this soil is only moderately suited to recreation uses.

This soil is in capability subclass IIIs. The woodland ordination symbol is 3s.

MaA—Maxton loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is along the larger streams. Areas range from 5 to 30 acres in size.

Typically, the surface layer is brown loamy sand 7 inches thick. The subsoil extends to a depth of 28 inches. It is brown sandy loam in the upper few inches and yellowish red sandy clay loam below. The underlying material to a depth of 72 inches or more is mainly strong brown loamy course sand.

This soil is low in natural fertility and organic matter. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate, and the available water capacity is medium. This soil has good tilth. It can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil are a few small areas of Bigbee, Hornsville, Suffolk, and Wahee soils. Also included are a few very small areas of very gently sloping soils.

This Maxton soil is well suited to farming. It responds favorably to irrigation during dry seasons and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Conservation tillage and the use of cover crops, including grasses and legumes, help conserve moisture and maintain organic matter.

This soil is well suited to loblolly pine and slash pine. It has no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses.

This soil is in capability class I. The woodland ordination symbol is 2o.

Mm—Meggett-Muckalee complex. This complex consists of poorly drained, nearly level soils on broad flood plains. It is frequently flooded in winter and spring. The areas of the Meggett soil and the Muckalee soil are so intermingled that they could not be mapped separately at the scale selected. Slope is 0 to 2 percent. Areas range from 50 to 2,000 acres in size.

Meggett loam makes up about 60 percent of each mapped area. Typically, the surface layer is very dark gray loam 3 inches thick. The subsurface layer extends to a depth of 8 inches. It is dark grayish brown fine sandy loam. The subsoil is dominantly clay and extends to a depth of 62 inches or more. It is dark gray in the upper part and gray in the lower part; brownish mottles are throughout the subsoil.

This Meggett soil is low in natural fertility and organic matter. Reaction ranges from strongly acid to slightly acid in the surface layer, from medium acid to neutral in the upper part of the subsoil, and from neutral to moderately alkaline in the lower part of the subsoil. Permeability is slow, and available water capacity is high. The root zone is deep except from late fall to mid-spring, when the water table commonly is at the surface or within a depth of 1 foot.

Muckalee loamy sand makes up about 40 percent of each mapped area. Typically, the surface layer is very dark grayish brown loamy sand 5 inches thick. The underlying layers to a depth of 65 inches are dominantly gray loamy sand, sandy loam, and sandy clay loam and have thin, brownish strata of sand, sandy loam, or sandy clay loam.

This Muckalee soil is low in natural fertility and organic matter. Reaction ranges from strongly acid to slightly acid in the surface layer and from medium acid to neutral in the subsoil. Permeability is moderate, and available water capacity is medium. The root zone is deep except from late fall to early spring, when the water table commonly is at a depth of 0.5 foot to 1.5 feet.

This complex is well suited to loblolly pine and slash pine. However, seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation commonly can be overcome by using modified equipment or by performing operations during the drier seasons. Drainage, bedding, reducing the number of competing plants, and using suitable species commonly increases the survival rate of the seedlings.

The soils in this complex are poorly suited to farming and recreation development because of wetness and the hazard of flooding. These limitations, which also severely restrict urban uses, can be overcome only by extensive flood control and drainage.

The soils in this complex are in capability subclass VIw. The woodland ordination symbol for the Meggett soil is 1w, and for the Muckalee soil is 2w.

NoA—Norfolk loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on uplands. Areas range from 10 to 100 acres in size.

Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsoil is dominantly yellowish brown sandy clay loam and extends to a depth of 72 inches or more.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and the available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included in this soil in mapping are a few small areas of Wagram and Orangeburg soils.

This Norfolk soil is well suited to farming. It responds favorably to irrigation during dry seasons and high yields can be obtained. Conservation tillage and the use of cover crops, including grasses and legumes, help maintain the content of organic matter and conserve moisture.

This soil is well suited to loblolly pine and slash pine. It has no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses.

This soil is in capability class I. The woodland ordination symbol is 2o.

NoB—Norfolk loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops on uplands. Slopes are smooth and convex. Areas range from 5 to 50 acres in size.

Typically, the surface layer is dark grayish brown loamy sand about 10 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 72 inches or more. It is yellowish brown and has reddish and grayish mottles in the lower part.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Orangeburg and Wagram soils. Eroded soils are in a few cultivated fields.

This Norfolk soil is well suited to farming. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops, including grasses and legumes, and terracing and contouring help reduce runoff and control erosion.

This soil is well suited to loblolly pine and slash pine. Although this soil has no significant limitations for woodland use, performing operations on the contour to keep soil erosion to a minimum is recommended.

This soil is well suited to most urban and recreation uses.

This soil is in capability subclass IIe. The woodland ordination symbol is 2o.

OeA—Orangeburg loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on uplands. Areas range from 10 to 400 acres in size.

Typically, the surface layer is brown loamy sand 8 inches thick. The subsurface layer extends to a depth of 13 inches. It is yellowish brown loamy sand. The subsoil extends to a depth of 72 inches or more. The upper part of the subsoil is yellowish red sandy loam, the middle part is red sandy clay loam, and the lower part is dominantly red sandy clay.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Faceville and Lucy soils. Also included are small areas of soils that have 10 to 15 percent small concretions of ironstone and a slowly permeable layer in the subsoil.

This Orangeburg soil is well suited to farming (fig. 1). During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained. Conservation tillage and the use of cover crops, including grasses and legumes, help maintain organic matter and conserve moisture.

This soil is well suited to loblolly pine and slash pine. It has no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses.

This soil is in capability class I. The woodland ordination symbol is 2o.

OeB—Orangeburg loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops on uplands. Slopes are smooth and convex. Areas range from 10 to 200 acres in size.

Typically, the surface layer is dark brown loamy sand 8 inches thick. The subsurface layer extends to a depth of 13 inches. It is yellowish brown loamy sand. The subsoil extends to a depth of 72 inches or more. It is yellowish red sandy loam in the upper few inches and red sandy clay loam below.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Faceville, Lucy, Norfolk, and Red Bay soils. Also included are small areas of soils that have 10 to 15 percent small concretions of ironstone and a slowly permeable layer in the subsoil.

This Orangeburg soil is well suited to farming (fig. 2). During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops, including grasses and legumes, and terracing and contouring help reduce runoff and control erosion.

Figure 1.—Rye on Orangeburg loamy sand, 0 to 2 percent slopes. This soil is prime farmland and is well suited to this close-growing cover crop.

This soil is well suited to loblolly pine and slash pine. Although this soil has no significant limitations for woodland use, performing operations on the contour to keep soil erosion to a minimum is recommended.

This soil is well suited to most urban and recreation uses.

This soil is in capability subclass IIe. The woodland ordination symbol is 2o.

OeC—Orangeburg loamy sand, 5 to 8 percent slopes. This well drained, gently sloping soil is mainly on hillsides on uplands. Slopes are smooth and convex. Areas range from 5 to 20 acres in size.

Typically, the surface layer is brown loamy sand 6 inches thick. The subsoil extends to a depth of 65 inches or more. It is yellowish red sandy loam in the upper few inches and red sandy clay loam below. Brown mottles are in the lower part.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and is easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Faceville and Lucy soils. Also included are small areas of soils that have 10 to 15 percent small

Figure 2.—Peanuts and corn under irrigation on Orangeburg loamy sand, 2 to 5 percent slopes. This soil is prime farmland and is well suited to the commonly grown cultivated crops.

concretions of ironstone and a slowly permeable layer in the subsoil.

This Orangeburg soil is well suited to farming. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops, including grasses and legumes, and terracing and contouring help reduce runoff and control erosion.

This soil is well suited to slash pine and loblolly pine. Although it has no significant limitations for woodland use, performing operations on the contour to keep soil erosion to a minimum is recommended.

This soil is well suited to most urban and recreation uses.

This soil is in capability subclass IIIe. The woodland ordination symbol is 2o.

Op—Osier-Pelham complex. This complex consists of poorly drained, nearly level soils mainly on flood plains. It is occasionally flooded for brief periods from winter to mid-spring. The areas of Osier soil and Pelham soil are so intermingled that they could not be mapped separately at the scale selected. Slope is 0 to 2 percent. Areas range from 50 to 200 acres in size.

Osier sand makes up about 50 percent of each mapped area. Typically, the surface layer is 15 inches thick. The upper part is very dark gray sand, and the

lower part is dark gray loamy sand. The underlying layers to a depth of 72 inches are mainly gray or grayish sand.

This Osier soil is low in natural fertility and organic matter. Reaction ranges from medium acid to very strongly acid throughout. Permeability is rapid, and available water capacity is low. The root zone is deep except from late fall to early spring, when the water table commonly is at the surface or within a depth of 1 foot.

Pelham loamy sand makes up about 35 percent of each mapped area. Typically, the surface layer is black loamy sand 4 inches thick. The subsurface layer is loamy sand and extends to a depth of 22 inches. The upper part is very dark gray, and the lower part is mainly gray. The subsoil is dominantly sandy clay loam and extends to a depth of 72 inches or more. It is light gray throughout and has brownish and reddish mottles.

This Pelham soil is low in natural fertility and organic matter. Reaction ranges from medium acid to very strongly acid throughout. Permeability is moderate, and available water capacity is very low. The root zone is deep except from midwinter to midspring, when the water table commonly is at a depth of 0.5 foot to 1.5 feet.

Included with these soils in mapping are a few areas of Bonneau, Duplin, and Grady soils.

The soils in this complex are moderately suited to loblolly pine and slash pine. Seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation commonly can be overcome by using modified equipment or by performing operations during the drier seasons. Drainage, bedding, reducing the number of competing plants, and using suitable species commonly increases the survival rate of the seedlings.

The soils in this complex are poorly suited to farming and recreation uses because of wetness and the hazard of flooding. These limitations, which also severely restrict urban uses can be overcome only by extensive flood control and drainage.

The soils in this complex are in capability subclass Vw. The woodland ordination symbol for the Osier soil is 3w, and for the Pelham soil is 2w.

Pe—Pelham loamy sand. This poorly drained, nearly level soil is on smooth areas, in depressions, and near drainageways. Pelham soils are occasionally flooded for brief periods from winter to midspring. Slope is 0 to 2 percent. Areas range from 10 to 100 acres in size.

Typically, the surface layer is black loamy sand 4 inches thick. The subsurface layer is loamy sand and extends to a depth of 22 inches. The upper part is very dark gray, and the lower part is mainly gray. The subsoil is dominantly sandy clay loam and extends to a depth of 72 inches or more. It is light gray throughout and has brownish and reddish mottles.

This soil is low in natural fertility and organic matter. Reaction ranges from medium acid to very strongly acid throughout. Permeability is moderate, and available water capacity is low. The root zone is deep except from midwinter to midspring, when the water table commonly is at a depth of 0.5 foot to 1.5 feet.

Included with this soil in mapping are a few small areas of Bonneau, Osier, and Grady soils.

This Pelham soil is well suited to slash pine and loblolly pine. Seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation commonly can be overcome by using modified equipment or by performing operations during the drier seasons. Drainage, bedding, reducing the number of competing plants, and using suitable species commonly increases the survival rate of the seedlings.

This Pelham soil is poorly suited to farming and recreation uses because of wetness and the hazard of flooding. These limitations, which also severely restrict urban uses, can be overcome only by extensive flood control and drainage.

This soil is in capability subclass Vw. The woodland ordination symbol is 2w.

ReA—Red Bay loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on uplands. Areas range from 10 to 100 acres in size.

Typically, the surface layer is dark reddish brown loamy sand 10 inches thick. The subsoil is dominantly dark red sandy clay loam and extends to a depth of 72 inches or more.

This soil is medium in natural fertility and low in organic matter. Reaction ranges from medium acid to very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few intermingled areas of Greenville, Lucy, and Orangeburg soils.

This Red Bay soil is well suited to farming. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained. Conservation tillage and the use of cover crops, including grasses and legumes, help to conserve moisture and maintain organic matter content.

This soil is well suited to loblolly pine, slash pine, and longleaf pine. It has no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses.

This soil is in capability class I. The woodland ordination symbol is 2o.

ReB—Red Bay loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops

on uplands. Slopes are smooth and convex. Areas range from 10 to 50 acres.

Typically, the surface layer is dark reddish brown loamy sand 10 inches thick. The subsoil is dominantly dark red sandy clay loam and extends to a depth of 72 inches or more.

This soil is medium in natural fertility and low in organic matter. Reaction ranges from medium acid to very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Greenville, Lucy, and Orangeburg soils.

This Red Bay soil is well suited to farming. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, terracing, contouring, and the use of cover crops, including grasses and legumes, help reduce runoff and control erosion.

This soil is well suited to loblolly pine, slash pine, and longleaf pine. Although this soil has no significant limitations for woodland uses, performing operations on the contour to keep soil erosion to a minimum is recommended.

This soil is well suited to urban and recreation uses.

This soil is in capability subclass IIe. The woodland ordination symbol is 2o.

SuA—Suffolk loamy fine sand, 0 to 2 percent slopes. This well drained, nearly level soil is on terraces of the larger streams. Areas range from 3 to 35 acres in size.

Typically, the surface layer is dark grayish brown loamy fine sand 2 inches thick. The subsurface layer is light olive brown loamy fine sand and extends to a depth of 14 inches. The subsoil is yellowish brown and extends to a depth of 46 inches. It is sandy loam in the upper part, sandy clay loam in the middle part, and sandy loam in the lower part. The underlying material is mainly brownish yellow loamy sand.

This soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. This soil has good tilth. It can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Bigbee, Hornsville, Maxton, and Wahee soils. Also included are a few small areas of very gently sloping soils. Some low-lying areas subject to seasonal flooding are included in mapping.

This Suffolk soil is well suited to farming. During dry seasons, it responds favorably to irrigation, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Conservation tillage and the use of cover crops, including grasses and legumes, help conserve moisture and maintain organic matter content.

This soil is well suited to loblolly pine and slash pine. It has no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses.

This soil is in capability class I. The woodland ordination symbol is 2o.

TfA—Tifton loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on uplands. Areas range from 10 to 200 acres in size.

Typically, the surface layer is dark grayish brown loamy sand about 10 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 62 inches or more. The upper part is yellowish brown, the middle part is yellowish brown and has reddish and brownish mottles, and the lower part is strong brown and has yellowish mottles. Plinthite is below a depth of about 36 inches and makes up 5 to 10 percent of the lower part of the subsoil. Nodules of ironstone are on the surface and throughout the soil.

This soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. The soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small areas of Carnegie, Norfolk, and Orangeburg soils.

This Tifton soil is well suited to farming. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained (fig. 3). Conservation tillage and the use of cover crops, including grasses and legumes, help maintain the organic matter content and conserve moisture.

This soil is well suited to most urban and recreation uses. However, moderate permeability in the subsoil limits the use of this soil for septic tank absorption fields. Commonly, this limitation can be overcome by practices such as increasing the size of the absorption field.

This soil is in capability class I. The woodland ordination symbol is 2o.

TfB—Tifton loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides on uplands. Slopes commonly are smooth and convex. Areas range from 10 to 150 acres in size.

Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsoil is dominantly

Figure 3.—Wheat on Tifton loamy sand, 0 to 2 percent slopes. This soil is prime farmland and is well suited to this common small grain crop.

sandy clay loam and extends to a depth of 60 inches or more. The upper part is yellowish brown, the middle part is yellowish brown and has reddish and brownish mottles, and the lower part is brownish yellow and has strong brown mottles. Plinthite is below a depth of about 30 inches and makes up 5 to 10 percent of the lower part of the subsoil. Nodules of ironstone are on the surface and throughout the soil.

This soil is low in natural fertility and organic matter. Reaction is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small areas of Carnegie, Norfolk, and Orangeburg soils.

This Tifton soil is well suited to farming. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Terracing, contour farming, conservation tillage, and the use of cover crops, including grasses and legumes, help reduce runoff and control erosion.

This soil is well suited to loblolly pine and slash pine. Although this soil has no significant limitations for woodland use, performing operations on the contour to keep soil erosion to a minimum is recommended.

This soil is well suited to most urban and recreation uses. However, moderate permeability in the subsoil limits the use of this soil for septic tank absorption fields. Commonly, this limitation can be overcome by practices such as increasing the size of the absorption field.

This soil is in capability subclass IIe. The woodland ordination symbol is 2o.

TsC2—Tifton sandy loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on hillsides on uplands. The surface layer is a mixture of the original surface soil and the upper part of the subsoil. In most places, slopes are irregular and convex and commonly contain rills or galled spots, shallow gullies, and an occasional deep gully. Areas range from 10 to 20 acres in size.

Typically, the surface layer is dark grayish brown sandy loam 6 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 60 inches or more. The upper part is yellowish brown, and the lower part is yellowish brown and has reddish mottles. Plinthite is below a depth of about 28 inches and makes up 5 to 10 percent of the lower part of the subsoil. Nodules of ironstone are on the surface and throughout the soil.

This soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. This soil has good tilth. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small areas of Carnegie, Norfolk, and Orangeburg soils.

This Tifton soil is well suited to farming. Good tilth can be maintained by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Conservation tillage and the use of cover crops, including grasses and legumes, help reduce runoff and control erosion.

This soil is well suited to loblolly pine and slash pine. Although this soil has no significant limitations for

woodland use, performing operations on the contour to keep soil erosion to a minimum is recommended.

This soil is well suited to most urban and recreation uses. However, moderate permeability in the subsoil limits the use of this soil for septic tank absorption fields. Commonly, this limitation can be overcome by such practices as increasing the size of the absorption field.

This soil is in capability subclass IIIe. The woodland ordination symbol is 2o.

TwB—Troup sand, 0 to 5 percent slopes. This well drained, nearly level and very gently sloping soil is on ridgetops on uplands. Slopes are smooth and convex. Areas range from 20 to 500 acres in size.

Typically, the surface layer is dark brown sand 4 inches thick. The subsurface layer is dominantly sand and extends to a depth of 53 inches. It is yellowish brown in the upper part and light yellowish brown in the middle and lower parts. The subsoil extends to a depth of 82 inches or more. It is strong brown sandy loam in the upper few inches and strong brown sandy clay loam below.

This soil is low in natural fertility and organic matter. Reaction is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability of the subsoil is moderate, and available water capacity is low. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small intermingled areas of Lucy and Wagram soils. Also included are soils that are sandy to a depth of 60 inches or more.

This Troup soil is poorly suited to farming because of the low available water capacity. Returning crop residue to the soil helps retain soil moisture. Yields for the crops commonly grown can be increased if this soil is irrigated.

This soil is moderately suited to loblolly pine, slash pine, and longleaf pine (fig. 4). Because this soil has low available water capacity, seedling mortality is a concern. Proper planting procedures, using suitable drought-hardy species, and reducing the number of competing plants commonly increase the survival rate of the seedlings. The sandiness of this soil commonly limits the use of conventional equipment. This limitation can be overcome by using special implements or by performing operations during the wetter seasons.

This soil is well suited to most urban uses. However, seepage is a limitation to most sanitary facilities. Because it is sandy, this soil is poorly suited to most recreation uses.

This soil is in capability subclass IIIs. The woodland ordination symbol is 3s.

TwC—Troup sand, 5 to 8 percent slopes. This well drained, gently sloping soil is on short hillsides on uplands. Slopes are smooth and convex. Areas range from 10 to 150 acres in size.

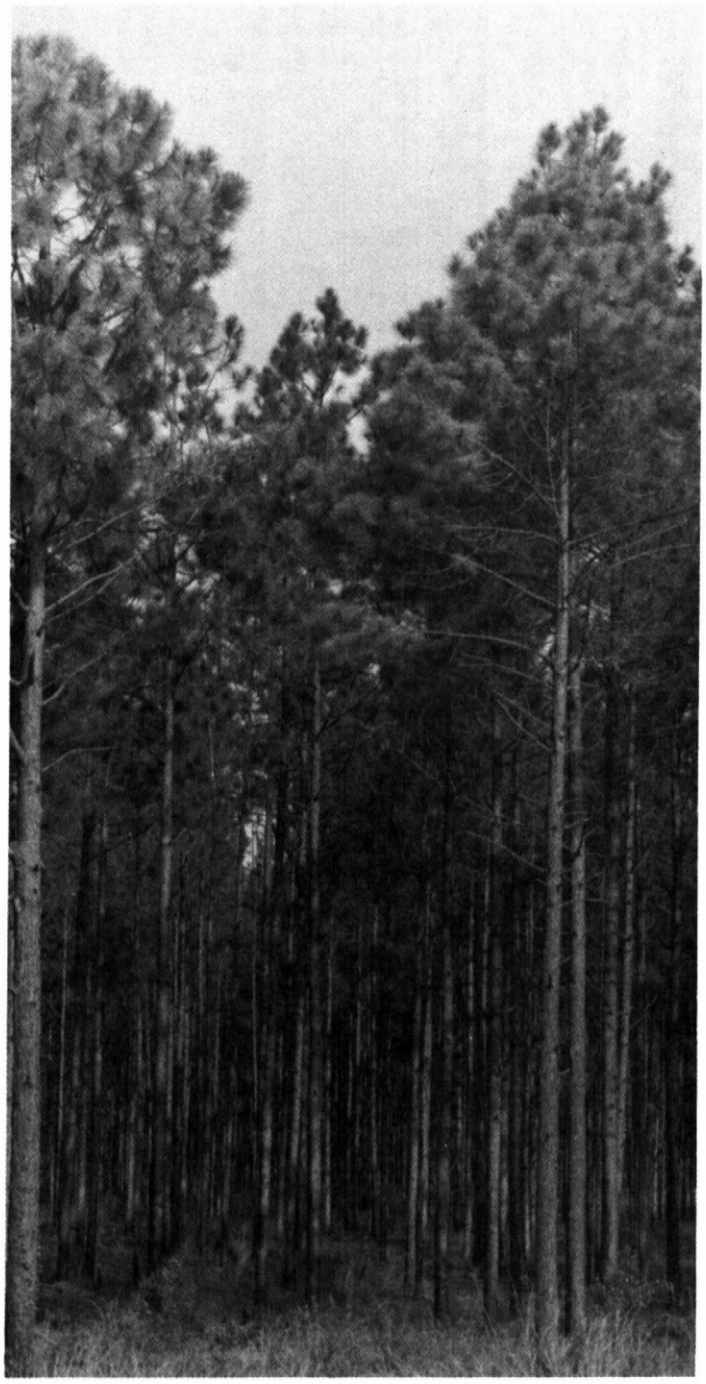


Figure 4.—Slash pine on Troup sand, 0 to 5 percent slopes.

Typically, the surface layer is dark grayish brown sand 4 inches thick. The subsurface layer is sand and extends to a depth of 53 inches. The upper part is yellowish brown, and the lower part is strong brown and brownish

yellow. The subsoil extends to a depth of 82 inches or more and is yellowish red sandy loam.

This soil is low in natural fertility and organic matter. Reaction is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability of the subsoil is moderate, and available water capacity is low. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Lucy and Wagram soils. Also included are small areas of soils that have a clayey, mottled subsoil. In a few areas, steep soils on short hillsides next to drainageways are included in the mapping.

This Troup soil is poorly suited to farming mainly because of the low available water capacity. Returning crop residue to the soil helps retain soil moisture.

This soil is moderately suited to loblolly pine, longleaf pine, and slash pine. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting procedures, using suitable drought-hardy species, and reducing the number of competing plants commonly increases the survival rate of the seedlings. The sandiness of this soil commonly limits the use of conventional equipment. Using special implements or performing operations during the wetter seasons helps overcome the equipment limitation.

This soil is well suited to most urban uses. However, seepage is a limitation for most sanitary facilities. Because it is sandy, this soil is poorly suited to most recreation uses.

This soil is in capability subclass IVs. The woodland ordination symbol is 3s.

WaB—Wagram loamy sand, 0 to 5 percent slopes. This well drained, nearly level and very gently sloping soil is on narrow to broad ridgetops on uplands. Slopes are smooth and convex. Areas range from 5 to 200 acres in size.

Typically, the surface layer is grayish brown loamy sand 6 inches thick. The subsurface layer is light yellowish brown loamy sand and extends to a depth of 28 inches. The subsoil extends to a depth of 82 inches or more. It is brownish yellow sandy loam in the upper few inches and yellowish brown sandy clay loam below.

This soil is low in natural fertility and organic matter. Reaction ranges from medium acid to very strongly acid throughout except for the surface layer in limed areas. Permeability is moderately rapid, and available water capacity is low. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Norfolk, Lucy, Orangeburg, and Troup soils.

This Wagram soil is only moderately suited to farming because of the low available water capacity. Returning crop residue to the soil helps overcome this limitation. During dry seasons, this soil responds favorably to irrigation and high yields can be obtained.

This soil is moderately suited to slash pine, loblolly pine, and longleaf pine. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting procedures, using suitable drought-hardy species, and reducing the number of competing plants commonly increase the survival rate of the seedlings. Because of the sandiness of the soil, the use of conventional equipment commonly is limited. Using special implements or performing operations during the wetter seasons helps overcome the equipment limiataion.

This soil is well suited to most urban uses. However, seepage is a limitation for some sanitary facilities. Because it is sandy, this soil is only moderately suited to recreation uses.

This soil is in capability subclass IIs. The ordination symbol is 3s.

WaC—Wagram loamy sand, 5 to 8 percent slopes. This well drained, gently sloping soil is on narrow ridgetops and short hillsides on uplands. Slopes are smooth and convex. Areas range from 10 to 50 acres in size.

Typically, the surface layer is grayish brown loamy sand 6 inches thick. The subsurface layer is light olive brown loamy sand and extends to a depth of 28 inches. The subsoil extends to a depth of 65 inches or more. It is dominantly yellowish brown sandy clay loam.

This soil is low in natural fertility and organic matter. Reaction is medium acid to very strongly acid throughout except for the surface layer in limed areas. Permeability is moderately rapid, and available water capacity is low. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Lucy and Troup soils.

This Wagram soil is only moderately suited to farming because of low available water capacity and slope. Returning crop residue to the soil helps to retain soil moisture.

This soil is moderately suited to loblolly pine and slash pine. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting procedures, using suitable drought-hardy species, and reducing the number of competing plants commonly increases the survival rate of the seedlings. Because of the sandiness of the soil, the use of conventional equipment commonly is limited. Using special implements or performing operations during the wetter seasons helps overcome the equipment limitation.

This soil is well suited to most urban uses. However, seepage is a limitation for some sanitary facilities. Because it is sandy, this soil is only moderately suited to recreation uses.

This soil is in capability subclass IIIs. The woodland ordination symbol is 3s.

WeA—Wahee fine sandy loam, 0 to 2 percent slopes. This somewhat poorly drained, nearly level soil is on terraces of the larger streams. It occasionally is flooded for brief periods from early winter to midspring. Areas range from 10 to 60 acres in size.

Typically, the surface layer is very dark gray fine sandy loam 4 inches thick. The subsurface layer, which extends to a depth of 10 inches, is grayish brown fine sandy loam. The subsoil extends to a depth of 65 inches or more. In the upper few inches, it is light yellowish brown sandy clay loam that has brownish, yellowish, and gray mottles. Below this, the subsoil is dominantly gray clay that has brownish and reddish mottles, and the lower part is light gray sandy clay loam.

This soil is low in natural fertility and organic matter. Reaction is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and available water capacity is high. The root zone is deep except from early winter to early spring, when the water table is at a depth of 0.5 foot to 1.5 feet.

Included with this soil in mapping are small areas of Hornsville soils.

This Wahee soil is poorly suited to row crops because of wetness and flooding. However, it is moderately suited to hay and pasture. If this soil is drained, protected against flooding, and properly managed, good yields can be obtained.

This soil is well suited to slash pine, loblolly pine, sweetgum, and yellow poplar. However, seasonal wetness limits the use of conventional equipment. This limitation commonly can be overcome by using modified or special equipment, or by performing operations during the drier seasons. Drainage and the use of suitable species commonly increase the survival rate of the seedlings.

This soil is poorly suited to most urban and recreation uses because of wetness and flooding. These limitations can only be overcome by flood control and drainage.

This soil is in capability subclass IIw. The woodland ordination symbol is 2w.

Important Farmland

This section gives the extent and location of the land in Baker and Mitchell Counties that is important for producing food, feed, fiber, forage, and oilseed crops.

The map units that make up *prime farmland* and *additional farmland of statewide importance*, and the acreage of each, are listed in table 5. This list does not constitute a recommendation for a particular land use. The location of each map unit is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units."

Prime Farmland

Prime farmland, as defined by the U.S. Department of Agriculture, is the land that is best suited to producing food, feed, forage, fiber, and oilseed crops. It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops if acceptable farming methods are used. Prime farmland produces the highest yields with minimal inputs of energy and money, and farming it results in the least damage to the environment. Prime farmland is of major importance in satisfying the nation's short- and long-range needs for food and fiber. The supply of high quality farmland is limited, and the U.S. Department of Agriculture recognizes that all levels of government, as well as individuals, must encourage and facilitate the wise use of our nation's prime farmland.

Prime farmland is either currently used for producing food or fiber or is available for this use. Urban or built-up land, water areas, or areas used for other purposes that preclude later use of the soils for farmland are not included. Urban and built-up land is any unit of land of 10 acres or more that is used for residences, industrial sites, commercial sites, construction sites, institutional sites, railroad yards, small parks, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water-control structures and spillways, shooting ranges, and so forth.

Prime farmland soils usually have an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity and alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not flooded during the growing season. Slope ranges mainly from 0 to 8 percent. For further information on the criteria for prime farmland, consult the local staff of the Soil Conservation Service.

In Baker and Mitchell Counties, 272,744 acres, or 49 percent of the survey area, meets the soil requirements for prime farmland (see table 5). Areas are scattered throughout the county, but most are in general soil map units 4, 5, 6, and 7 in Baker County and units 6 and 7 in Mitchell County.

A recent trend in land use in some parts of the county has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on additional farmland of statewide importance.

Additional Farmland of Statewide Importance

In Baker and Mitchell Counties, 151,314 acres is additional farmland of statewide importance (see table 5). This farmland consists of soils that are important to the agricultural resource base in the county but that do not meet the requirements for prime farmland. These soils are more erodible, droughty, seasonally wet, and difficult to cultivate and usually are less productive than prime farmland soils. The slope is 8 percent or less.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

Mary B. Leidner, conservation agronomist, Soil Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

Soil erosion is a major concern on most of the soils used for farming in Baker and Mitchell Counties. If slope is more than 2 percent, erosion is a hazard. Carnegie, Esto, Faceville, Orangeburg, Red Bay, Susquehanna, and Tifton soils, for example, commonly have slopes of 2 to 8 percent. Very gently sloping and gently sloping Carnegie soils and gently sloping Faceville and Tifton soils are eroded. These soils have rills and gullies and the upper part of the subsoil has been mixed with the surface layer.

Loss of the surface layer through erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as Carnegie, Esto, Faceville, Greenville, and Susquehanna soils. Second, soil erosion on farmland results in sedimentation of streams. Control of erosion minimizes the pollution of streams by sediment and improves the quality of water for municipal use, for recreation, and for fish and wildlife.

In many sloping fields, tilling or preparing a good seedbed is difficult on eroded spots left after the original, friable surface soil has been removed. Such spots are common in areas of Carnegie, Faceville, and Tifton soils.

Erosion control practices provide protective surface cover, reduce runoff, and increase infiltration. A cropping system that keeps plant cover on the soil for extended periods aids in maintaining the productive capacity of the soils. On livestock farms, which require pasture and hay, the grass forage crops in the cropping system reduce erosion on sloping land and improve tilth for the following crop.

Using a tillage system that leaves adequate amounts of crop residue on the surface increases infiltration and reduces runoff and erosion. This practice can be used on most soils in the survey area. No-tillage for corn and soybeans, use of which is increasing, reduces erosion on

sloping land and can be adapted to most soils in the survey area.

Terraces and diversions shorten the slope, thereby reducing runoff and controlling erosion. These terraces and diversions are most practical on well drained soils that have smooth and convex slopes. In Baker and Mitchell Counties, the soils suitable for terraces are Carnegie, Faceville, Greenville, Norfolk, Orangeburg, Red Bay, and Tifton soils.

Contour farming is needed to reduce erosion in the survey area. It is most effective on soils that have smooth, uniform slopes, including most areas of the very gently sloping or gently sloping Carnegie, Esto, Faceville, Greenville, Norfolk, Orangeburg, Red Bay, and Tifton soils.

Soil blowing is a concern on the sandy Lakeland and Kershaw soils. Soil blowing can damage these soils and the young plants growing on them if the soils are dry and have little surface mulch. Maintaining plant cover or surface mulch or using a tillage method that keeps the surface of the soil rough minimizes soil blowing. Windbreaks effectively reduce soil blowing in broad, open fields.

Information on the design of erosion control practices for each kind of soil is available from local offices of the Soil Conservation Service.

Drainage is a major management need on most of the seasonally wet soils used for crops and pasture in the survey area. Some soils are so wet that production of crops common in the area is generally not possible. These are the poorly drained Coxville, Grady, Meggett, Muckalee, Osier, and Pelham soils. Much of this acreage is wooded.

Unless artificially drained, the somewhat poorly drained soils are so wet that crops are damaged during most years. In this category are the Albany and Wahee soils. Bonneau, Clarendon, Duplin, and Goldsboro soils are moderately well drained, but if used for cropland, they need artificial drainage in most years.

The design of both surface and subsurface drainage systems varies with the kind of soil. A combination of surface drainage and tile drainage is needed in most areas of poorly drained soils before they can be used for row cropping. Drains need to be more closely spaced in slowly permeable soils than in more permeable soils. Tile drainage is slow in Grady soils. Finding adequate outlets for tile drainage systems is difficult in many areas of Grady and Pelham soils.

Soil fertility is naturally low in most soils in the survey area. However, these soils respond well to fertilization and other good management. The soils in depressions on uplands, along drainageways, and on flood plains, such as Coxville, Grady, Osier, and Pelham soils, commonly have more organic matter than do most well drained soils on uplands or on the higher lying stream terraces.

The soils in Baker and Mitchell Counties are naturally acid. If the soils used for cultivated crops and pasture have never been limed, applications of ground limestone are needed to raise the pH level sufficiently for good growth of legumes and other crops that grow on nearly neutral soils. Available phosphorus and potash levels are naturally low in most of these soils. On all soils, additions of lime and fertilizer should be based on the results of soil tests, on the needs of the crop, and on the desired level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to apply.

Soil tilth is an important factor in the germination of seeds and the infiltration of water into the soil. Soils in this area that have good tilth are granular and porous.

Most of the soils used for crops in the survey area have a surface layer of loamy sand or sandy loam that is low in content of organic matter. Tilth is generally good except on the eroded Carnegie, Faceville, and Tifton soils, in which the subsoil is exposed. Regular additions of crop residue, manure, and other organic material help to improve or maintain tilth.

Fall plowing is generally not a good practice in the survey area. Most of the cropland consists of soils that are subject to damaging erosion if plowed in fall.

Many field crops are suited to the soils and climate of the survey area. Corn, peanuts, soybeans, and tobacco are commonly grown (fig. 5). Cotton and similar crops can be grown. Wheat, rye, and oats are the commonly grown small grains.

Improved bermudagrass and bahiagrass are common pasture plants in Baker and Mitchell Counties. Moderately well drained and well drained loamy or clayey soils, such as Faceville, Norfolk, Orangeburg, Tifton, Clarendon, Duplin, and Goldsboro soils are well suited to these pasture plants. Excessively drained Bigbee and Lakeland soils and well drained Troup soils are representative of those soils that have low available water capacity and are best suited to improved bermudagrass. Somewhat poorly drained Albany and Wahee soils and poorly drained Osier and Pelham soils are typical of soils that are seasonally wet and best suited to bahiagrass.

Special crops grown commercially in the survey area are vegetables and tree fruits. Pecans also are important (fig. 6).

Soils that have good natural drainage and that warm up early in spring are especially well suited to many vegetables and small fruits. In the survey area, soils having these characteristics are the Carnegie, Faceville, Greenville, Maxton, Norfolk, Orangeburg, Red Bay, Suffolk, and Tifton soils. If irrigated, Bigbee, Lakeland, Lucy, Troup, and Wagram soils are also well suited to vegetables and small fruits. Crops can generally be planted and harvested earlier on these soils than on the other soils in the survey area.

Figure 5.—Peanuts on Tifton loamy sand, 2 to 5 percent slopes. This soil is prime farmland and is well suited to the commonly grown crops.

If excess water is removed, the somewhat poorly drained Albany and Wahee soils and the moderately well drained Bonneau, Clarendon, Duplin, and Goldsboro soils are well suited to a wide range of vegetables.

Most of the well drained soils in the survey area are suited to orchards and nursery plants. Soils in low positions where frost is frequent and air drainage is poor generally are poorly suited to early vegetables, small fruits, and orchards. Latest information and suggestions for growing special crops can be obtained from local offices of the Cooperative Extension Service and the Soil Conservation Service.

Yields Per Acre

Winfield S. Carson, soil scientist, Soil Conservation Service, helped prepare this section.

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and

Figure 6.—Pecan grove on Wagram loamy sand, 0 to 5 percent slopes. Over 200,000 pecan trees are in production each year in Baker and Mitchell Counties. Many are on Wagram soils.

results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, animal manure, and green-manure crops; and harvesting that insures the smallest possible loss. Fertilizer needs of specific crops on specific soils can be determined by soil tests. General fertilizer recommendations for field crops are also available (*3*).

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 6 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor does it consider possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland and for engineering purposes.

In the capability system, soils are generally grouped at two levels: capability class and subclass. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have slight limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, or s,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); and *s* shows that the soil is limited mainly because it is droughty.

In class I there are no subclasses because the soils of this class have slight limitations. Class V contains only the subclass indicated by *w* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation.

The acreage of soils in each capability class and subclass is shown in table 7. The capability classification of each map unit is given in the section "Detailed Soil Map Units."

Woodland Management and Productivity

Gary L. Tyre, forester, Soil Conservation Service, helped prepare this section.

When the first European settlers arrived in Baker and Mitchell Counties, most of the land was in virgin forest. Those forest types most significant in the original forests still account for over 95 percent of the forest cover; they include longleaf-slash pine, loblolly-shortleaf pine, oak-pine, oak-hickory, and oak-gum-cypress.

According to the 1971 Forest statistics for southwest Georgia (*9*), forestland made up 127,800 acres, or 56 percent, of Baker County and 130,700 acres, or 40 percent, of Mitchell County. Of this forestland, about 60 percent in Mitchell County and 41 percent in Baker County is in pure pine types. The forest industry owns about 12 percent of the commercial forestland in Baker County and 39 percent of the commercial forestland in Mitchell County. The rest is privately owned.

Significant changes in land use have taken place in these counties in recent years. In the survey area and surrounding counties, about 6 percent of the forestland was converted to agricultural use between 1960 and 1970, and it is likely that conversion occurred at an even faster rate from 1970 to 1980. Although some of this land is marginal for production of row crops in terms of fertility and erodibility, much of it was among the most productive forestland. At present, only 29 percent of the forestland of Mitchell County and 14 percent of the forestland of Baker County is capable of producing a cord or more per acre annually.

Stocking on forestland in these counties generally reflects the productivity of this land. About 27 percent of Mitchell County and about 10 percent of Baker County is fully stocked; approximately 38 percent of Mitchell County and 50 percent of Baker County is poorly stocked.

The forest species in Baker and Mitchell Counties occur on a variety of soils. Soils on flood plains, such as Meggett, Muckalee, and Osier soils, and soils on smooth areas, in depressions, and near drainageways, such as Pelham soils, support such tree species as slash pine, longleaf pine, loblolly pine, sweetbay, sweetgum, blackgum, water tupelo, and red maple. Of these soils, Meggett and Muckalee are the most productive, with site indices for loblolly and slash pine ranging to 100. Forest management on the Meggett, Muckalee, Osier, and Pelham soils should take into account severe limitations related to seedling mortality and restricting the use of planting and harvesting equipment on these soils.

Common soils on stream terraces are Wahee, Hornsville, and Bigbee soils. Native trees on the Wahee

soils include blackgum, loblolly pine, water oak, willow oak, southern red oak, and sweetgum. These soils have no severe management limitations and are classified as highly productive for loblolly pine and slash pine. Site indices for these two tree species average about 85.

Goldsboro, Grady, Bonneau, Pelham, Duplin, and Coxville soils are typical of soils on low-lying areas or in depressions of uplands. Typical tree species on the poorly drained Grady soils are baldcypress, blackgum, and water oak; species common on the moderately well drained Duplin soils are pine, white oaks, red oaks, and yellow-poplar. Both the site index and management concerns vary considerably on these soils, and onsite inspection is necessary to determine management practices.

Well drained soils on uplands, such as Wagram, Troup, Lucy, Tifton, Norfolk, Orangeburg, and Esto soils have relatively few limitations to management. The site index for loblolly pine and slash pine averages about 80.

About 78 percent of the soils in Mitchell County are in the Wagram-Troup-Lucy, Tifton-Norfolk, and Norfolk-Orangeburg-Wagram general soil map units. These are well drained soils that have moderately high or high productivity. Most site indices for loblolly pine and slash pine range from the mid-70s to the mid-80s. In Baker County, Orangeburg-Red Bay-Grady, Orangeburg-Lucy-Grady, Norfolk-Wagram-Grady, and Wagram-Troup-Lucy general soil map units make up about 82 percent of the county. Productivity on these soils is comparable to that on the major general soil map units in Mitchell County.

Information in this section is provided to explain soil-tree growth relationships in the survey area. This information can help in planning conservation practices and in making investment and management decisions.

Table 8 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination (woodland suitability) symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *w* indicates excessive water in or on the soil; *c*, clay in the upper part of the soil; and *s*, sandy texture. The letter *o* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: w, c, and s.

In table 8, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings apply to seedlings from good stock that are properly planted during a period of sufficient rainfall. A rating of *slight* indicates that the expected mortality is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. Site index was determined at age 30 years for eastern cottonwood, 35 years for American sycamore, and 50 years for all other species. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suited to the soils and to commercial wood production.

Recreation

Baker and Mitchell Counties provide many possibilities for recreation. Fishing and boating are available on the Flint River and the larger creeks, the farm ponds, the lakes, and the smaller streams. The flood plains and stream terraces near these water areas are well suited to nature study, hunting, and similar activities. The well drained, nearly level or very gently sloping Faceville, Greenville, Maxton, Norfolk, Orangeburg, Red Bay, and Suffolk soils commonly are on ridgetops and are well suited to playgrounds. If necessary, the very gently sloping soils can be leveled and smoothed for ballfields and tennis courts. Most of the well drained, nearly level to gently sloping soils are well suited to campsites, picnic areas, parks, paths and trails, golf courses, and nature study areas.

The soils of the survey area are rated in table 9 according to limitations that affect their suitability for

recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 9, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 9 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 12 and interpretations for dwellings without basements and for local roads and streets in table 11.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking, horseback riding, and bicycling should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Louis Justice, biologist, Soil Conservation Service, helped to prepare this section.

Baker and Mitchell Counties are largely rural environments that support fair wildlife habitat in predominantly cropland and woodland settings. Fish and wildlife are important for recreation and contribute substantially to the local economy. This area is well known for its large quail plantations.

About 40 percent of the survey area is forested and nearly 48 percent is in row crops. Forests in these counties are about 20 percent hardwoods, 43 percent or more pine, and 37 percent mixed. Major plant species of importance to terrestrial wildlife include greenbrier, bush and annual lespedezas, panicgrass, croton, ragweed, partridge pea, paspalum, tickclover, and sumac. Overstory and understory species of importance are sweetgum, blackgum, pine, oaks, hickories, hollies, blackberry, elderberry, hackberry, and maple. Domestic species of importance to wildlife include peanut, corn, soybeans, bahiagrass, and sunflowers.

Cropland interspersed with pine plantations and hardwood forests provides habitat for white-tailed deer, mourning dove, raccoon, gray squirrel, gray and black fox squirrel, opossum, fox, and other wildlife. Bobwhite quail populations are abundant in areas that have suitable food and cover. Quail plantations provide the best game habitat in the area.

Unmanaged pasture, old fields, young pine plantations, and managed woodlands produce numerous native woody and herbaceous plants that provide food and cover for white-tailed deer, rabbit, quail, and other wildlife species.

Land use trends toward extensive clearing of woodland for row crops and the introduction of irrigation are affecting fish and wildlife populations. Removal of crop residue from fields, removal of hedgerows and odd areas, and increased siltation have an adverse effect on fish and wildlife habitat. Many of the chemicals used to increase agricultural production have severe effects upon small birds and animals. The most seriously affected game species is quail.

Wildlife habitat can be improved by restoring hedgerows, field borders, windbreaks, and odd areas in fields. In recent years, wind damage to young crops has encouraged the establishment of windbreaks. Windbreaks can support wildlife if suitable plants are selected. Areas unsuited to large irrigation systems still provide habitat to quail and rabbit populations.

Wetland habitats support a variety of furbearers, including otter, beaver, and raccoon. The best wetland habitat available is the bottom land hardwood areas along the Flint River around Gee Pond in Mitchell County, and near the numerous lime sinks of Baker County.

Baker and Mitchell Counties have about 38,000 acres of forested wetland, about 300 small ponds, and about 88 miles of streams. Important fresh water sport fish in these counties include redeye bass (shoal bass), Suwannee bass, largemouth bass, crappie, flathead catfish, channel catfish, bluegill, and redear sunfish. Sport fish species that migrate up rivers from the sea to breed in fresh water are striped bass and shad. Because of the fragile habitat requirements of fish, special efforts are needed to restrict and retard both point and nonpoint sources of water pollution in these counties.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 10, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, lespedezas, goldenrod, partridge pea, beggarweed, three-awn, and composites.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine and cedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface

stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite quail, dove, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Engineering

Fenton W. Nash, Jr., agricultural engineer, Soil Conservation Service, assisted in planning this section.

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 11 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by stone content; soil texture; and slope. The time of the year that excavations

can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, and shrink-swell potential can cause the movement of footings. A high water table and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, and the available water capacity in the upper 40 inches affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 12 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 12 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table and flooding affect absorption of the effluent.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 12 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, and flooding.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope can cause construction problems.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered

daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 12 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 13 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by a high water table and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 13 only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), and the thickness of suitable material. Acidity and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by

slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope and a water table.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 14 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and for embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. A high water table affects the amount of usable material. It also affects trafficability.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; and susceptibility to flooding. Excavating and grading and the stability of ditchbanks are affected by slope and the hazard of cutbanks caving. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, permeability, erosion hazard, and slope. The performance of a system is affected by soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope and wetness affect the construction of terraces and diversions. Restricted permeability adversely affects maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Wetness and slope affect the construction of grassed waterways. Low available water capacity, restricted rooting depth, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics. These results are reported in table 18.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas (*8*). Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 15 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil Series and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 18.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 16 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, and plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.05 to 0.69. The higher the value the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

In table 16, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter of a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 17 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms. Some soils in table 17 are assigned to two hydrologic soil groups. The dual grouping is used for soils that have a seasonal high water table but can be drained. The first letter applies to the drained condition of the soil and the second letter to the undrained condition.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, nor is water in swamps and marshes.

Table 17 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal conditions; *occasional* that it occurs, on the average, no more than once in 2 years; and *frequent* that it occurs, on the average, more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; November-May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 17 are the depth to the seasonal high water table; the kind of water table—that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 17.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. An *artesian* water table is under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or

weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Engineering Index Test Data

Table 18 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons of the Wagram soils are typical of the series and are described in the section "Soil Series and Their Morphology." Pedons of the Troup soils are taxadjuncts to the series. The soil samples were tested by the Office of Materials and Research, Georgia Department of Transportation.

The testing methods generally are those of the American Association of State Highway and Transportation Officials (AASHTO) or the American Society for Testing and Materials (ASTM).

The tests and methods are: AASHTO classification—M 145 (AASHTO), D 3282 (ASTM); Unified classification—D 2487 (ASTM); Mechanical analysis—T 88 (AASHTO), D 2217 (ASTM); Liquid limit—T 89 (AASHTO), D 423 (ASTM); Plasticity index—T 90 (AASHTO), D 424 (ASTM); Moisture density, Method A—T 99 (AASHTO), D 698 (ASTM); Specific gravity (particle index)—T100 (AASHTO), D653 (ASTM); Volume change (Abercrombie)—Georgia Highway Standard.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*10*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 19 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Fluvaquents (*Fluv*, meaning flood plains plus *aquent*, the suborder of the Entisols that have an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Fluvaquents.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-loamy, siliceous, nonacid, thermic Typic Fluvaquents.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the Soil Survey Manual (*7*). Many of the technical terms used in the descriptions are defined in Soil Taxonomy (*10*). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Albany Series

The Albany series consists of somewhat poorly drained soils that are rapidly permeable in the surface layer and thick subsurface layer and moderately permeable in the subsoil. These soils formed in sandy and loamy marine sediment on uplands. The water table is at a depth of 1.0 foot to 2.5 feet during winter and early spring. Slope is 0 to 2 percent.

Albany soils are geographically associated with Bonneau, Pelham, Troup, and Wagram soils. Moderately well drained Bonneau soils are arenic. Poorly drained Pelham soils are arenic and are on lower landscapes.

Well drained Troup soils and Wagram soils are on higher landscapes; in addition, Wagram soils are arenic.

Typical pedon of Albany sand, 0 to 2 percent slopes, about 1.0 mile north of Hopeful, on Georgia Highway 311; 1.2 miles southwest of its junction with county paved road; 200 feet south of center of road; in Mitchell County.

Ap—0 to 7 inches; dark gray (10YR 4/1) sand; single grained; loose; many fine roots; strongly acid; abrupt wavy boundary.

A21—7 to 24 inches; grayish brown (10YR 5/2) sand; few medium distinct yellowish brown (10YR 5/6) mottles; single grained; loose; common fine roots in upper part; strongly acid; clear wavy boundary.

A22—24 to 41 inches; light yellowish brown (10YR 6/4) sand; common medium distinct yellowish brown (10YR 5/6) and light gray (10YR 7/2) mottles; single grained; loose; very strongly acid; gradual wavy boundary.

A23—41 to 53 inches; light yellowish brown (10YR 6/4) sand; many medium distinct light gray (10YR 7/2) and yellowish brown (10YR 5/6) mottles; single grained; loose; very strongly acid; gradual wavy boundary.

B21t—53 to 64 inches; mottled pale brown (10YR 6/3), light gray (10YR 7/1), and yellowish brown (10YR 5/6) sandy loam; weak fine subangular blocky structure; friable; discontinuous clay films in some pores; few gray lenses of sand; very strongly acid; gradual wavy boundary.

B22t—64 to 80 inches; mottled light yellowish brown (10YR 6/4), light gray (10YR 7/1), and yellowish brown (10YR 5/6) sandy clay loam; weak fine subangular blocky structure; friable; patchy clay films on faces of peds; very strongly acid.

Solum thickness is 80 inches or more. The soils are very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 40 to 55 inches thick. The A1 horizon or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2.

The B1 horizon, if present, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 or 6. It has few or common gray, brown, and yellow mottles.

The Bt horizon has hue of 10YR, value of 5 to 7, and chroma of 3, 4, 6, or 8; hue of 2.5Y, value of 5 to 7, and chroma of 4 or 6; or hue of 2.5Y, value of 6 or 7, and chroma of 8. It has common or many red, brown, yellow, and gray mottles. In some pedons, the lower part of this horizon does not have a matrix color but is mottled in hue of 10YR, value of 5 to 7, and chroma of 1 to 4, 6, or 8; hue of 2.5Y, value of 5 to 7, and chroma of 2, 4, or 6; or hue of 2.5Y, value of 6 or 7, and chroma of 8. The Bt horizon is sandy loam or sandy clay loam.

Bigbee Series

The Bigbee series consists of excessively drained, rapidly permeable soils that formed in sandy fluvial sediment. These soils are on stream terraces of the Flint River and its major tributaries. The water table is at a depth of 3.5 to 6.0 feet during winter and early spring. Slope is 0 to 2 percent.

Bigbee soils are geographically associated with Hornsville, Suffolk, and Maxton soils. These associated soils have a Bt horizon. Additionally, Hornsville soils are moderately well drained and Suffolk and Maxton soils are well drained.

Typical pedon of Bigbee sand, 0 to 2 percent slopes, 0.3 mile east-southeast of the apex of Horseshoe Bend on the Flint River; 500 feet north of the river, on Pineland Plantation; in Baker County.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; few fine roots; medium acid; abrupt smooth boundary.

C1—8 to 16 inches; yellowish brown (10YR 5/4) sand; single grained; loose; strongly acid; clear smooth boundary.

C2—16 to 38 inches; light yellowish brown (10YR 6/4) sand; few small pockets of clean white (10YR 8/2) sand; single grained; loose; strongly acid; clear smooth boundary.

C3—38 to 79 inches; very pale brown (10YR 7/4) sand; few small pockets of clean white (10YR 8/2) sand; single grained; loose; strongly acid; clear smooth boundary.

C4—79 to 96 inches; very pale brown (10YR 7/4) fine sand; common small pockets of clean white (10YR 8/2) fine sand; single grained; loose; strongly acid.

Thickness of the sand ranges from 85 to 96 inches or more. The soil is strongly acid throughout except for the surface layer in limed areas.

The A horizon is 4 to 8 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 2 or 3.

The upper part of the C horizon has hue of 10YR, value of 4 to 6, and chroma of 4. Some pedons have a few small pockets of white sand. The lower part of the C horizon has hue of 10YR, value of 5 to 7, and chroma of 4 or 6. It is sand or fine sand.

Bonneau Series

The Bonneau series consists of moderately well drained, moderately permeable soils that formed in sandy and loamy marine sediment on uplands. The water table is at a depth of 3.5 feet to 5.0 feet during winter and early spring. Slope is 0 to 2 percent.

Bonneau soils are geographically associated with Albany, Goldsboro, and Pelham soils. Somewhat poorly drained Albany soils are grossarenic. Goldsboro soils

have an A horizon less than 20 inches thick. Pelham soils are poorly drained and are on lower landscapes.

Typical pedon of Bonneau loamy sand, 0 to 2 percent slopes, 3.4 miles south of Camilla on Georgia Highway 112; 3.7 miles southwest on Branchville Road; 0.3 mile east on county road; 60 feet north of road; in Mitchell County.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; slightly acid; clear smooth boundary.

A21—9 to 23 inches; very pale brown (10YR 7/4) loamy sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

A22—23 to 34 inches; very pale brown (10YR 7/3) loamy sand; few fine distinct yellowish brown mottles; weak fine granular structure; very friable; few fine roots; strongly acid; gradual smooth boundary.

B1—34 to 42 inches; light yellowish brown (10YR 6/4) sandy loam; few fine distinct yellowish brown mottles; weak medium subangular blocky structure; friable; strongly acid; clear wavy boundary.

B21t—42 to 48 inches; brownish yellow (10YR 6/6) sandy clay loam; few medium distinct light gray (10YR 7/2) and yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—48 to 64 inches; light yellowish brown (10YR 6/4) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) and light gray (10YR 7/1) mottles; weak medium subangular blocky structure; friable, patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

Solum thickness is 64 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 22 to 38 inches thick. The Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 4. The A2 horizon has hue of 10YR, value of 4 to 7, and chroma of 2 to 4; or hue of 2.5Y, value of 4 to 7, and chroma of 2 or 4.

The B1 horizon has hue of 10YR, value of 6, and chroma of 4 or 6; or hue of 2.5Y, value of 6, and chroma of 4 or 6. It has few or common brownish or grayish mottles.

The B21t horizon has hue of 2.5Y or 10YR, value of 6, and chroma of 4 or 6. Mottles are gray, yellowish brown, or strong brown in most pedons. The B22t horizon has the same matrix colors as the B21t horizon. Mottles are light gray and yellowish brown in most pedons.

Carnegie Series

The Carnegie series consists of well drained soils that have moderately slow permeability. These soils formed dominantly in clayey marine sediment on uplands. Slope is 3 to 8 percent.

Carnegie soils are geographically closely associated with Esto, Orangeburg, and Tifton soils. Esto and Orangeburg soils do not contain plinthite; additionally, Orangeburg soils are in a fine-loamy family and have a redder subsoil. Tifton soils are in a fine-loamy family and contain 5 percent or more plinthite below a depth of 30 to 50 inches.

Typical pedon of Carnegie sandy loam, 5 to 8 percent slopes, eroded, 2.6 miles northeast of U.S. Highway 19 on Georgia Highway 93; 0.8 mile northeast on county road; 35 feet southwest of road; in Mitchell County.

Apcn—0 to 5 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; very friable; many fine roots; many nodules of ironstone; strongly acid; abrupt wavy boundary.

B21cn—5 to 18 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots in upper part; patchy clay films on faces of peds; common nodules of ironstone; very strongly acid; gradual wavy boundary.

B22t—18 to 28 inches; strong brown (7.5YR 5/6) sandy clay; common medium distinct red (2.5YR 4/8) and yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; thin patchy clay films on faces of peds; few nodules of ironstone; about 10 percent nodular plinthite; very strongly acid; gradual wavy boundary.

B23t—28 to 40 inches; mottled strong brown (7.5YR 5/6), red (2.5YR 4/6), and very pale brown (10YR 7/3) sandy clay; moderate medium subangular blocky structure; firm; patchy clay films on faces of peds; about 8 percent nodular plinthite; very strongly acid; gradual wavy boundary.

B24t—40 to 62 inches; coarsely mottled, strong brown (7.5YR 5/6), red (2.5YR 4/6), very pale brown (10YR 7/3), light gray (10YR 7/2), and brownish yellow (10YR 6/6) sandy clay; moderate medium subangular blocky structure; firm; patchy clay films on faces of peds; 5 percent plinthite; very strongly acid.

Solum thickness is 62 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Depth to horizons that have 5 to 12 percent plinthite is 16 to 26 inches.

The A horizon is 4 to 8 inches thick. The Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Nodules of ironstone make up 5 to 15 percent of the volume.

The B21t horizon has hue of 5YR or 7.5YR, value of 5, and chroma of 6 or 8. It is sandy clay loam or sandy clay. The B22t horizon has hue of 10YR or 7.5YR, value of 5, and chroma of 6 or 8. It is sandy clay or clay. The middle part of the Bt horizon has medium and coarse reddish, brownish, yellowish, or grayish mottles. The lower part of the Bt horizon is mottled reddish, grayish, yellowish, or brownish. The gray mottles are lithochromic and do not represent wetness. Nodules of ironstone make up 5 to 10 percent of the upper part of the B horizon.

Clarendon Series

The Clarendon series consists of moderately well drained soils. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. These soils formed mainly in loamy marine sediment on uplands. The water table is at a depth of 1.5 to 2.5 feet in winter and early spring. Slope is 0 to 2 percent.

Clarendon soils are geographically associated with Bonneau, Goldsboro, Pelham, and Tifton soils. Bonneau soils are arenic and do not contain plinthite. Goldsboro soils have less than 5 percent plinthite. Pelham soils are poorly drained and are in lower lying areas. Tifton soils are well drained and commonly are on higher lying landscapes.

Typical pedon of Clarendon loamy sand, 0 to 2 percent slopes, 1.3 miles east of Cotton on Georgia Highway 93; 0.8 mile southeast on county road; 150 feet north of road; in Mitchell County.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) loamy sand; weak fine granular structure; very friable; many fine roots; few nodules of ironstone; slightly acid; abrupt wavy boundary.

A2—8 to 17 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine granular structure; very friable; common fine roots; few nodules of ironstone; strongly acid; clear wavy boundary.

B1—17 to 24 inches; brownish yellow (10YR 6/6) sandy loam; weak fine granular structure; very friable; few nodules of ironstone; strongly acid; gradual wavy boundary.

B21t—24 to 35 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct light gray (10YR 7/2) and strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few nodules of ironstone; patchy clay films on faces of peds and in pores; about 4 percent plinthite; strongly acid; gradual wavy boundary.

B22t—35 to 47 inches; brownish yellow (10YR 6/6) sandy clay loam common medium distinct strong brown (7.5YR 5/6), light gray (10YR 7/2), and prominent red (2.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few patchy clay films on faces of peds and in pores; about 10 percent plinthite; very strongly acid; gradual wavy boundary.

B23t—47 to 72 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium prominent strong brown (7.5YR 5/6) and light gray (10YR 7/2) mottles; moderate coarse subangular blocky structure; firm; thin patchy clay films on faces of peds; 5 percent plinthite; strongly acid.

Solum thickness is 60 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 7 to 18 inches thick. The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2. The A2 horizon, if present, has hue of 10YR, value of 6, and chroma of 3 or 4. The A horizon has few or common nodules of ironstone.

The B1 horizon has hue of 10YR, value of 5 or 6, and chroma of 4 or 6. It has few or common nodules of ironstone.

The upper part of the Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. It has reddish, brownish, or grayish mottles, and it has few or common nodules of ironstone. The lower part of the Bt horizon has reddish, brownish, yellowish, or grayish mottles; the grayish mottles are below a depth of 20 to 30 inches. Plinthite content ranges from 5 to 15 percent, but the plinthite is mostly in the lower part. The Bt horizon commonly is sandy clay loam, but some pedons have a thin subhorizon that is sandy loam or sandy clay.

Coxville Series

The Coxville series consists of poorly drained, moderately slowly permeable soils that formed mainly in clayey marine sediment in drainageways. The water table is within a depth of 1.5 feet from winter to midspring. Slope is 0 to 2 percent.

Coxville soils are geographically associated with Bonneau, Duplin, Grady, and Pelham soils. Moderately well drained Bonneau and Duplin soils are on somewhat higher lying landscapes; additionally, Bonneau soils are arenic. Grady soils are more than 45 percent clay in the upper 20 inches of the Bt horizon. Pelham soils are arenic and have a loamy subsoil.

Typical pedon of Coxville fine sandy loam, 3.3 miles southwest of Camilla on Georgia Highway 112; 4.5 miles southwest on Branchville Road; 0.3 mile west on Georgia Highway 65; 0.1 mile north on field road; 60 feet east of road; in Mitchell County.

Ap—0 to 8 inches; very dark gray (10YR 3/1) fine sandy loam; weak fine granular structure; very friable; common fine roots; strongly acid; abrupt smooth boundary.

B1g—8 to 14 inches; grayish brown (10YR 5/2) sandy clay loam; few fine distinct strong brown mottles;

weak fine subangular blocky structure; friable; common fine roots; very strongly acid; clear smooth boundary.

B21tg—14 to 25 inches; gray (10YR 6/1) sandy clay; common coarse prominent red (2.5YR 4/8) and few fine distinct yellow mottles; strong medium subangular blocky structure; firm, few fine roots; clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22tg—25 to 42 inches; gray (10YR 5/1) sandy clay; common medium distinct yellowish brown (10YR 5/8) and common medium prominent reddish brown (5YR 5/3) and red (10YR 4/8) mottles; strong medium subangular blocky structure; firm; clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23tg—42 to 62 inches; gray (10YR 5/1) sandy clay; many coarse prominent red (2.5YR 4/8) and yellowish brown (10YR 5/8) mottles; stratified with pockets of white sand; strong medium subangular blocky structure; firm; clay films on faces of peds; very strongly acid.

Solum thickness is 60 to 80 inches or more. The soil is very strongly acid or strongly acid throughout.

The A horizon is 4 to 11 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 1.

The Bt horizon has hue of 10YR, value of 4 to 6, and chroma of 1; or it has no hue and has value of 4 to 6. Common or many medium or coarse yellowish, brownish, and reddish mottles are throughout the horizon.

Duplin Series

The Duplin series consists of moderately well drained, moderately slowly permeable soils that formed in mainly clayey sediment on uplands. The water table is at a depth of 2.0 to 3.0 feet from winter until midspring. Slope is 0 to 2 percent.

Duplin soils are geographically associated with Bonneau, Clarendon, Coxville, and Goldsboro soils. Clarendon and Goldsboro have a loamy subsoil; additionally, Clarendon soils contain plinthite. Poorly drained Coxville soils are in poorly defined drainageways. Bonneau soils are arenic and have a loamy subsoil.

Typical pedon of Duplin fine sandy loam, 0 to 2 percent slopes, on Georgia Highway 112; 0.4 mile north of its junction with Georgia Highway 65; 1.2 miles east on field road; 250 feet south of road; in Mitchell County.

A1—0 to 3 inches; grayish brown (10YR 5/2) fine sandy loam; weak fine granular structure; very friable; many fine and very fine roots; medium acid; clear smooth boundary.

A21—3 to 12 inches; pale brown (10YR 6/3) fine sandy loam; few fine faint brownish yellow mottles; weak fine granular structure; very friable; many very fine roots; strongly acid; clear smooth boundary.

B21t—12 to 17 inches; light yellowish brown (10YR 6/4) sandy clay; few fine faint yellowish brown mottles; weak fine subangular blocky structure; friable; common very fine roots; few thin clay films on faces of peds; strongly acid; clear wavy boundary.

B22tg—17 to 28 inches; grayish brown (10YR 5/2) sandy clay; common medium distinct yellowish brown (10YR 5/8) and common medium prominent red (2.5YR 4/8) mottles; strong medium subangular blocky structure; firm; few very fine roots; thin clay films on faces of peds; strongly acid; gradual wavy boundary.

B23tg—28 to 47 inches; gray (N 5/0) sandy clay; common medium distinct yellowish brown (10YR 5/6), strong brown (7.5YR 5/6), and red (2.5YR 4/8) mottles; strong medium subangular blocky structure; firm; few very fine roots; thin clay films on faces of peds; strongly acid; gradual wavy boundary.

B24tg—47 to 62 inches; gray (N 5/0) sandy clay; many medium distinct strong brown (7.5YR 5/8) and common medium prominent red (2.5YR 4/5) mottles; strong medium subangular blocky structure; firm; thin clay films on faces of peds; strongly acid.

Solum thickness is 60 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 10 to 13 inches thick, or the Ap horizon is 6 to 8 inches thick. These horizons have hue of 10YR, value of 3 or 4, and chroma of 1 or 2. The A2 horizon, if present, has hue of 10YR, value of 4 or 5, and chroma of 2; hue of 10YR, value of 4 to 6, and chroma of 3; or hue of 10YR, value of 6, and chroma of 4.

The upper part of the Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4; or hue of 10YR, value of 5, and chroma of 6. The lower part of the Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2; or it has no hue and has value of 5 or 6. It includes mottles that have hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 2 to 4, 6, or 8; or hue of 2.5YR, value of 4 to 6, and chroma of 2, 4, 6, or 8.

Esto Series

The Esto series consists of well drained, slowly permeable soils that formed mainly in clayey marine sediment on uplands. Slope is 2 to 15 percent.

Esto soils are geographically associated with Carnegie, Orangeburg, Norfolk, and Susquehanna soils. Carnegie soils have a subsoil that is 5 percent or more plinthite below a depth of about 18 inches. Norfolk and Orangeburg soils are in a fine-loamy family; additionally, Orangeburg soils have a redder subsoil with no mottles. Somewhat poorly drained Susquehanna soils have a subsoil that is very firm.

Typical pedon of Esto sandy loam, in an area of Esto-Susquehanna sandy loams, 2 to 5 percent slopes, about

10.0 miles northeast of Camilla on Georgia Highway 112; 0.8 mile northeast of railroad crossing on the highway; 350 feet southeast of the highway, on a county road; 250 feet east of road; in Mitchell County.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; friable; many fine roots; medium acid; abrupt wavy boundary.
B1—5 to 13 inches; yellowish brown (10YR 5/6) sandy clay; weak medium subangular blocky structure; firm; common fine roots; very strongly acid; clear wavy boundary.
B21t—13 to 32 inches; yellowish brown (10YR 5/6) clay; common medium distinct yellowish red (5YR 4/8) and red (2.5YR 4/8) mottles; strong medium subangular blocky structure; firm; common fine roots; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.
B22t—32 to 65 inches; mottled yellowish red (5YR 5/8), light gray (10YR 7/2), strong brown (7.5YR 5/8), and red (2.5YR 4/8) clay; strong medium subangular blocky structure; firm; patchy clay films on faces of peds; very strongly acid.

Solum thickness is 60 to 72 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 4 to 9 inches thick. The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2.

The B1 horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 or 6.

The Bt horizon is mottled in hue of 10YR and 5YR, value of 4 to 6, and chroma of 4 or 6; hue of 10YR and 5YR, value of 5 to 7, and chroma of 8; or hue of 7.5YR, value of 4 to 6, and chroma of 4 or 6; grayish mottles are in the lower part of the horizon. Some pedons have a matrix that has hue of 10YR to 5YR, value of 4 to 6, and chroma of 4 or 6; additionally, there are common or many medium or coarse grayish, reddish, yellowish, and brownish mottles. The Bt horizon is clay or sandy clay.

Faceville Series

The Faceville series consists of well drained, moderately permeable soils that formed dominantly in clayey marine sediment on uplands. Slope is 0 to 8 percent.

Faceville soils are geographically associated with Greenville, Orangeburg, and Red Bay soils. Greenville and Red Bay soils are rhodic; additionally, Red Bay soils are in a fine-loamy family. Orangeburg soils are similar to Faceville soils except that they are in a fine-loamy family.

Typical pedon of Faceville sandy loam, 2 to 5 percent slopes, 1.8 miles south of the old site of Hoggard Mill on dirt road south of Georgia Highway 91; in east road cut; in Baker County.

Ap—0 to 6 inches; brown (7.5YR 4/4) sandy loam; weak medium granular structure; very friable; common fine roots; mixed with small clods of B1 horizon; strongly acid; abrupt smooth boundary.
B1—6 to 12 inches; yellowish red (5YR 4/6) sandy clay loam; weak fine subangular blocky structure; friable; common fine roots; strongly acid; clear smooth boundary.
B21t—12 to 34 inches; red (2.5YR 4/6) sandy clay; moderate medium subangular blocky structure; friable; few fine roots; few thin patchy clay films on faces of most peds; strongly acid; gradual smooth boundary.
B22t—34 to 55 inches; red (2.5YR 4/6) sandy clay; few medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; few very fine roots; few thin patchy clay films on faces of most peds; strongly acid; gradual wavy boundary.
B23t—55 to 65 inches; red (2.5YR 4/6) sandy clay; common medium prominent yellowish brown (10YR 5/6) mottles and few medium prominent very pale brown (10YR 7/3) mottles; moderate medium subangular blocky structure; friable; few very fine roots; few thin patchy clay films on faces of some peds; few dark red (2.5YR 3/6) streaks; very strongly acid.

Solum thickness is 65 to 72 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas. In places, fine nodules of ironstone make up 1 to 10 percent of the A horizon and less than 3 percent in the B horizon. Plinthite content is less than 5 percent to a depth of 65 inches or more.

The Ap horizon is 6 to 10 inches thick. It has hue of 5YR and 10YR, value of 4 to 6, and chroma of 2 to 4; or hue of 7.5YR, value of 4 to 6, and chroma of 2 or 4.

The B1 horizon has hue of 5YR, value of 4 or 5, and chroma of 6; or hue of 5YR, value of 5, and chroma of 8.

The Bt horizon has hue of 2.5YR, value of 4 or 5, and chroma of 6 or 8; hue of 5YR, value of 4 or 5, and chroma of 6; or hue of 5YR, value of 5, and chroma of 8. It is sandy clay or clay. Red and brown mottles are in many pedons commonly at a depth of 36 inches or more.

Goldsboro Series

The Goldsboro series consists of moderately well drained, moderately permeable soils that formed in loamy marine sediment on uplands. The water table is at a depth of 2.0 to 3.0 feet from winter to midspring. Slope is 0 to 2 percent.

Goldsboro soils are geographically associated with Bonneau, Norfolk, and Orangeburg soils. Norfolk and Orangeburg soils are well drained and commonly are on

somewhat higher landscapes. In addition, Orangeburg soils have a reddish Bt horizon. Moderately well drained Bonneau soils are arenic.

Typical pedon of Goldsboro loamy sand, 0 to 2 percent slopes, 0.4 mile north on Georgia Highway 112 from its intersection with Georgia Highway 65; 250 feet east of highway; in Mitchell County.

Ap—0 to 8 inches; grayish brown (10YR 5/2) loamy sand; weak fine granular structure; very friable; common fine roots; medium acid; abrupt smooth boundary.
B21t—8 to 28 inches; yellowish brown (10YR 5/6) sandy clay loam; few fine prominent yellowish red mottles; moderate medium subangular blocky structure; friable; few fine roots; thin patchy clay films on faces of peds; strongly acid; gradual wavy boundary.
B22t—28 to 42 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/8) mottles and few fine distinct light brownish gray mottles; weak medium subangular blocky structure; friable; thin patchy clay films on faces of peds; strongly acid; gradual wavy boundary.
B23t—42 to 50 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/6) and light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; strongly acid; gradual wavy boundary.
B24tg—50 to 64 inches; gray (10YR 6/1) sandy clay loam; many medium distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; strongly acid.

Solum thickness is 62 to 72 inches or more. The soil is strongly acid or very strongly acid except for the surface layer in limed areas.

The A horizon is 8 to 18 inches thick. The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2.

The B1 horizon, if present, has hue of 10YR, value of 5 or 6, and chroma of 6.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 1 to 4, 6, or 8. Few or common fine or medium gray, brown, and yellowish red mottles are at a depth of 28 inches.

Grady Series

The Grady series consists of poorly drained, slowly permeable soils that formed in clayey marine sediment in depressions on uplands. This soil commonly is ponded or the water table is within 1.0 foot of the surface in winter to early summer. Slope is 0 to 2 percent.

Grady soils are geographically associated with Albany, Bonneau, and Pelham soils. Albany and Bonneau soils surround the Grady soils on slightly higher lying areas. Somewhat poorly drained Albany soils and moderately well drained Bonneau soils have a thick, sandy surface layer. Pelham soils are arenic and have less clay in the subsoil. Grady soils are also associated with Norfolk, Orangeburg, Tifton, and Wagram soils. These associated well drained soils are on higher lying upland ridgetops and hillsides.

Typical pedon of Grady fine sandy loam, 1.0 mile east of Anna on Georgia Highway 200; 1,585 feet north of Live Oak Church and the highway; in a depression; in Baker County.

Ap—0 to 5 inches; very dark gray (10YR 3/1) fine sandy loam; moderate medium granular structure; friable; many fine roots; clear smooth boundary; very strongly acid.
B1g—5 to 12 inches; dark gray (10YR 4/1) clay loam; dark yellowish brown (10YR 4/4) stains around root holes; moderate medium subangular blocky structure; firm; very sticky; common fine roots; few fine pores; clear smooth boundary; very strongly acid.
B21tg—12 to 29 inches; gray (10YR 5/1) clay; strong medium subangular blocky structure; extremely firm; plastic; few fine roots; clay films on faces of peds and in root channels; dark grayish brown (10YR 4/2) and dark gray (10YR 4/1) soil material in root channels; very strongly acid; clear wavy boundary.
B22tg—29 to 39 inches; dark gray (10YR 4/1) clay; common medium distinct gray (N 5/0) mottles; strong medium subangular blocky structure; extremely firm; plastic; few fine root holes that are stained strong brown (7.5YR 5/6); continuous clay films on faces of peds; very strongly acid; clear wavy boundary.
B23tg—39 to 52 inches; gray (10YR 6/1) clay; common medium faint gray (N 5/0) mottles and common medium distinct yellowish brown (10YR 5/6) mottles; strong medium subangular blocky structure; extremely firm; plastic; continuous clay films on faces of peds; very strongly acid; clear wavy boundary.
B24tg—52 to 72 inches; gray (10YR 5/1) clay; few fine faint gray mottles and few fine distinct yellowish brown mottles; moderate medium subangular blocky structure; extremely firm; plastic; patchy clay films on faces of peds; very strongly acid.

Solum thickness is 60 to 80 inches or more. The soil is strongly acid or very strongly acid throughout.

The A1 horizon or Ap horizon is 4 to 10 inches thick. It has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. The A2 horizon, if present, has hue of 10YR or 5Y, value of 5 or 6, and chroma of 1 or 2; or hue of 2.5Y, value of 5 or 6, and chroma of 2.

The B1g horizon has hue of 10YR, value of 4 to 6, and chroma of 1.

The Btg horizon has hue of 10YR or 5Y, value of 4 to 7, and chroma of 1 or 2; or hue of 2.5Y, value of 4 to 7, and chroma of 2. It is clay or sandy clay. Some pedons have few to many gray, strong brown, yellowish brown, and light yellowish brown mottles throughout the horizon.

Greenville Series

The Greenville series consists of well drained, moderately permeable soils that formed dominantly in clayey marine sediment on uplands. Slope is 0 to 5 percent.

Greenville soils are geographically associated with Faceville, Orangeburg, and Red Bay soils. Faceville soils have a red B horizon. Orangeburg soils have a red B horizon that is loamy. Red Bay soils have a loamy B horizon.

Typical pedon of Greenville sandy loam, 0 to 2 percent slopes, 3.2 miles northwest of Patmos on paved county road; 0.2 mile north on field road; 35 feet east of road; in Baker County.

Ap—0 to 9 inches; dark reddish brown (5YR 3/4) sandy loam; weak fine granular structure; very friable; many fine and very fine roots; medium acid; abrupt smooth boundary.

B1—9 to 17 inches; dark red (2.5YR 3/6) sandy clay loam; weak medium subangular blocky structure; friable, common fine and very fine roots; material from Ap horizon in root holes; medium acid; clear smooth boundary.

B21t—17 to 46 inches; dark red (2.5YR 3/6) sandy clay; moderate, coarse subangular blocky structure; firm; few fine roots; many nearly continuous clay films on faces of peds; strongly acid; gradual wavy boundary.

B22t—46 to 72 inches; dark red (2.5YR 3/6) sandy clay; weak coarse subangular blocky structure; firm; patchy clay films on faces of peds; strongly acid.

Solum thickness is 72 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The Ap horizon is 4 to 9 inches thick. It has hue of 5YR, value of 3, and chroma of 2 to 4.

The B1 horizon has hue of 2.5YR, value of 3, and chroma of 4 or 6; or hue of 5YR, value of 3, and chroma of 4.

The Bt horizon has hue of 2.5YR or 10R, value of 3, and chroma of 6. Some pedons have brown and red mottles in the lower part of the Bt horizon. In places few or common fine nodules of ironstone and manganese concretions are throughout.

Hornsville Series

The Hornsville series consists of moderately well drained, moderately slowly permeable soils that formed mainly in clayey marine sediment. These soils are on terraces of the larger streams. The water table is at a depth of 2.5 to 3.5 feet in winter to midspring. Slope is 0 to 2 percent.

Hornsville soils are geographically associated with Bigbee, Maxton, Suffolk, and Wahee soils. Excessively drained Bigbee soils are sandy throughout. Well drained Suffolk soils are in a fine-loamy family. Well drained Maxton soils have a solum 20 to 40 inches thick. Wahee soils are somewhat poorly drained.

Typical pedon of Hornsville fine sandy loam, 0 to 2 percent slopes, 0.35 mile south of Baconton on Georgia Highway 3; 0.9 mile west on county road; 0.6 mile southwest on field road into grove; 15 feet east of road; in Mitchell County.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) fine sandy loam, weak fine granular structure; very friable; few fine roots; medium acid; abrupt smooth boundary.

B1—6 to 11 inches; brown (7.5YR 5/4) sandy loam; weak fine subangular blocky structure; friable; few fine roots; strongly acid; clear smooth boundary.

B21t—11 to 21 inches; yellowish red (5YR 4/6) sandy clay; moderate medium subangular blocky structure; firm; thick clay films on faces of peds; few fine roots; strongly acid; gradual wavy boundary.

B22t—21 to 28 inches; yellowish red (5YR 4/6) sandy clay; common fine distinct strong brown mottles; moderate medium subangular structure; firm; thick clay films on faces of peds; strongly acid; gradual wavy boundary.

B3—28 to 43 inches; strong brown (7.5YR 5/6) sandy clay loam; common medium distinct yellowish red (5YR 5/8) and light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; firm; strongly acid; gradual wavy boundary.

C—43 to 62 inches; strong brown (7.5YR 5/6) sandy loam; many medium distinct yellowish red (5YR 5/8) and light brownish gray (10YR 6/2) mottles; massive; friable; strongly acid.

Solum thickness is 40 to 72 inches or more. The soil is strongly acid or very strongly acid except where the surface layer has been limed.

The A horizon is 4 to 8 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. If present, the A2 horizon has hue of 10YR, value of 4, and chroma of 3.

The B1 horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6. It is sandy loam or sandy clay loam.

The B2t horizon has hue of 2.5YR, value of 4 or 5, and chroma of 4, 6, or 8; hue of 5YR to 10YR, value of 4 or 5, and chroma of 4 or 6; or hue of 5YR to 10YR, value of 5, and chroma of 8. Brown, yellow, and gray mottles are in most pedons; gray mottles are within 24

inches of the top of the argillic horizon. This horizon is sandy clay, clay, or clay loam.

The B3 horizon has hue of 2.5YR, value of 4 or 5, and chroma of 6 or 8; hue of 5YR to 10YR, value of 4 or 5, and chroma of 6; or hue of 5YR to 10YR, value of 5, and chroma of 8. Gray, yellow, and brown mottles are throughout the horizon. This horizon is sandy clay loam or sandy loam.

The C horizon has hue of 5YR and 10YR, value of 5 to 7, and chroma of 1 to 4, 6, or 8; or hue of 7.5YR, value of 5 to 7, and chroma of 2, 4, 6, or 8. It is sandy loam, loamy sand, or loamy coarse sand.

Kershaw Series

The Kershaw series consists of excessively drained, very rapidly permeable soils that formed in sandy marine sediment on uplands. Slope is 2 to 12 percent.

Kershaw soils are geographically associated with Lakeland and Troup soils. Lakeland soils have 5 to 10 percent silt plus clay in the control section. Troup soils are grossarenic.

Typical pedon of Kershaw sand, 2 to 12 percent slopes, 2.5 miles north of Baconton on Georgia Highway 3; 0.8 miles west on field road; 200 feet south of road; in Mitchell County.

A1—0 to 2 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; many fine roots; very strongly acid; abrupt smooth boundary.
C1—2 to 11 inches; brownish yellow (10YR 6/6) sand; single grained; loose; few fine roots; strongly acid; gradual smooth boundary.
C2—11 to 52 inches; light yellowish brown (10YR 6/4) sand; single grained; loose; strongly acid; clear wavy boundary.
C3—52 to 64 inches; brownish yellow (10YR 6/6) sand; single grained; loose; strongly acid; clear wavy boundary.
C4—64 to 80 inches; yellowish brown (10YR 5/6) sand; single grained; loose; few fine roots; strongly acid.

Thickness of the sand is 80 inches or more. The soil is strongly acid or very strongly acid throughout.

The A horizon is 2 to 9 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 1 or 2.

The C horizon has hue of 10YR and 2.5Y, value of 5 to 7, and chroma of 4 or 6. It is sand or coarse sand.

Lakeland Series

The Lakeland series consists of excessively drained, very rapidly permeable soils that formed in sandy marine sediment on uplands. Slope is 2 to 5 percent.

Lakeland soils are geographically associated with Albany, Lucy, Pelham, and Troup soils. Albany soils are in low-lying upland areas, and Pelham soils are on smooth areas, in depressions, and in drainageways on uplands. Somewhat poorly drained Albany and well drained Troup soils are grossarenic. Well drained Lucy soils and poorly drained Pelham soils are arenic.

Typical pedon of Lakeland sand, 2 to 5 percent slopes, 11.0 miles southwest of Camilla on Georgia Highway 97; 8.1 miles southwest on Georgia Highway 311; 1.4 miles west on field road; 25 feet northwest of road; in Mitchell County.

A—0 to 3 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; common clean uncoated white (10YR 8/1) sand grains; many fine roots; strongly acid; abrupt wavy boundary.
C1—3 to 28 inches; yellowish brown (10YR 5/4) sand; single grained; loose; few fine roots; few uncoated sand grains; very strongly acid; gradual wavy boundary.
C2—28 to 54 inches; brownish yellow (10YR 6/6) sand; single grained; loose; many uncoated sand grains; very strongly acid; gradual wavy boundary.
C3—54 to 82 inches; brownish yellow (10YR 6/6) sand; common medium faint white (10YR 8/1) mottles; single grained; loose; many uncoated sand grains; very strongly acid.

Thickness of the sand is 80 to 86 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 2 to 6 inches thick. The A1 horizon or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3.

The C horizon has hue of 10YR, value of 5 to 8, and chroma of 2, 4, or 6. Small pockets of light gray or white sand are below a depth of 40 inches in some pedons.

Lucy Series

The Lucy series consists of well drained, moderately permeable soils that formed in sandy and loamy marine sediment on uplands. Slope is 0 to 8 percent.

Lucy soils are geographically associated with Norfolk, Orangeburg, Troup, and Wagram soils. Norfolk and Orangeburg soils have a sandy A horizon less than 20 inches thick. Troup soils are grossarenic. Wagram soils have a brownish or yellowish Bt horizon.

Typical pedon of Lucy loamy sand, 0 to 5 percent slopes 6.2 miles west of Camilla on Georgia Highway 37; 1.0 mile west on field road; 30 feet north of road; in Mitchell County.

Ap—0 to 9 inches; dark brown (10YR 3/3) loamy sand; weak fine granular structure; very friable; many fine and few medium roots; medium acid; clear smooth boundary.
A2—9 to 23 inches; dark brown (7.5YR 4/4) loamy sand; weak fine granular structure; very friable; common fine and few medium roots; mixing of Ap horizon in

root holes; very strongly acid; clear smooth boundary.
A3—23 to 29 inches; yellowish red (5YR 4/6) loamy sand; weak fine granular structure; common fine and few medium roots; very strongly acid; clear smooth boundary.
B1—29 to 35 inches; yellowish red (5YR 4/6) sandy loam; weak fine subangular blocky structure; friable; few fine and medium roots; very strongly acid; gradual smooth boundary.
B21t—35 to 48 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few very fine roots; sand grains coated and bridged with clay; few patchy clay films on faces of peds; very strongly acid.
B22t—48 to 72 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few thin bridges of clay on faces of peds; very strongly acid.

Solum thickness is 72 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 22 to 38 inches thick. The Ap horizon is 7 to 10 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. The A2 horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6. The A3 horizon, if present, has hue of 5YR, value of 4 or 5, and chroma of 6 or 8.

The B1 horizon has hue of 2.5YR, value of 4 or 5, and chroma of 6 or 8; or hue of 5YR, value of 4 or 5, and chroma of 6; or hue of 5YR, value of 5, and chroma of 8.

The Bt horizon has hue of 2.5YR, value of 4 or 5, and chroma of 6 or 8; or hue of 5YR, value of 4 or 5, and chroma of 6; or hue of 5YR, value of 5, and chroma of 8.

Maxton Series

The Maxton series consists of well drained, moderately permeable soils that formed mainly in loamy marine sediment. These soils are on terraces of the larger streams. Slope is 0 to 2 percent.

Maxton soils are geographically associated with Bigbee, Hornsville, Suffolk, and Wahee soils. Excessively drained Bigbee soils are sandy throughout. Moderately well drained Hornsville soils have a clayey subsoil and a thicker solum. Suffolk soils have a yellowish brown subsoil. Somewhat poorly drained Wahee soils have a clayey subsoil and a thicker solum.

Typical pedon of Maxton loamy sand, 0 to 2 percent slopes, 7.2 miles west of Camilla on Georgia Highway 37; 2.0 miles northeast on paved county road; 1.0 mile north on field road; 1,100 feet northeast of field road; in Mitchell County.

Ap—0 to 7 inches; brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; common fine roots; strongly acid; abrupt smooth boundary.
B1—7 to 11 inches; brown (7.5YR 5/4) sandy loam; weak fine subangular blocky structure; friable; common fine roots; strongly acid; clear smooth boundary.
B2t—11 to 28 inches; yellowish red (5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; few fine roots; clear wavy boundary.
IIC1—28 to 42 inches; strong brown (7.5YR 5/8) loamy sand; single grained; loose; few fine roots; strongly acid; clear wavy boundary.
IIC2—42 to 55 inches; strong brown (7.5YR 5/8) loamy coarse sand; single grained; loose; few fine roots; strongly acid; clear wavy boundary.
IIC3—55 to 72 inches; light brown (7.5YR 6/4) loamy coarse sand; single grained; loose; few fine faint strong brown mottles; few small rounded pebbles of quartz; strongly acid.

Solum thickness is 27 to 37 inches. The soil is very strongly acid or strongly acid except where the surface layer has been limed.

The A horizon is 4 to 10 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. The A2 horizon, if present, has hue of 10YR, value of 4 or 5, and chroma of 3 or 4.

The B1 horizon, if present, has hue of 10YR or 5YR, value of 4 or 5, and chroma of 3, 4, or 6; hue of 10YR, value of 5, and chroma of 8; or hue of 5YR, value of 5, and chroma of 8; hue of 7.5YR, value of 4 or 5, and chroma of 4 or 6; or hue of 7.5YR, value of 5, and chroma of 8.

The B2t horizon has hue of 5YR, value of 4 or 5, and chroma of 6; hue of 5YR, value of 5, and chroma of 8; or hue of 2.5YR, value of 4 or 5, and chroma of 6 or 8. It is sandy clay loam or sandy loam.

The B3 horizon, if present, has hue of 5YR, value of 4 to 6, and chroma of 6; or hue of 5YR, value of 5 and 6, and chroma of 8.

The C horizon has hue of 10YR or 5YR, value of 4 to 7, and chroma of 3, 4, or 6; hue of 10YR, value of 5, 6, or 7, and chroma of 8; hue of 5YR, value of 5, 6, or 7, and chroma of 8; hue of 7.5YR, value of 4 to 7, and chroma of 4 or 6; or hue of 7.5YR, value of 5, 6, or 7, and chroma of 8. The C horizon is loamy coarse sand, loamy sand, or sand. It commonly contains clean sand, small quartz pebbles, and a few fine flakes of mica.

Meggett Series

The Meggett series consists of poorly drained, slowly permeable soils that formed in clayey alluvial sediment on flood plains. The water table is at the surface or within a depth of 1 foot from late fall to midspring. Slope is 0 to 2 percent.

Meggett soils are geographically associated with Muckalee soils. Muckalee soils are in a coarse-loamy family.

Typical pedon of Meggett loam, in an area of Meggett-Muckalee complex, 1.5 miles west of Red Store crossroads and Georgia Highway 91 on county road; 530 feet north of road; in Baker County.

A1—0 to 3 inches; very dark gray (10YR 3/1) loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; abrupt wavy boundary.
A2—3 to 8 inches; dark grayish brown (10YR 4/2) fine sandy loam; few fine faint gray mottles; weak fine granular structure; very friable; many fine and medium roots; strongly acid; abrupt wavy boundary.
B21tg—8 to 14 inches; dark gray (10YR 4/1) sandy clay; common fine faint gray and few fine faint yellowish brown mottles; weak medium subangular blocky structure; firm; common fine and medium roots; patchy clay films on faces of peds; medium acid; gradual wavy boundary.
B22tg—14 to 36 inches; dark gray (10YR 4/1) clay; common fine faint gray and yellowish brown mottles; moderate medium subangular blocky structure; firm; few fine and medium roots; patchy clay films on faces of peds; neutral; gradual wavy boundary.
B23tg—36 to 44 inches; gray (N 5/0) clay; common medium distinct yellowish brown (10YR 5/4) and light yellowish brown (2.5Y 6/4) mottles; moderate medium subangular blocky structure; firm; patchy clay films on faces of peds; mildly alkaline; gradual wavy boundary.
B24tg—44 to 62 inches; gray (N 5/0) clay; common medium distinct gray (10YR 5/1) and yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; patchy clay films on faces of peds; mildly alkaline.

Solum thickness is 62 inches or more. The soil is strongly acid or medium acid in the surface layer, medium acid to mildly alkaline in the upper part of the subsoil, and neutral or mildly alkaline in the lower part of the subsoil.

The A horizon is 6 to 9 inches thick. The A1 horizon has hue of 10YR, value of 2 to 5, and chroma of 1 or 2. The A2 horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2.

The Btg horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2; or it has no hue and has value of 4 to 7. The Btg horizon has few to many gray, yellowish brown, light yellowish brown, and brown mottles.

Muckalee Series

The Muckalee series consists of poorly drained, moderately permeable soils that formed in sandy and loamy alluvium on flood plains. The water table is at a depth of 0.5 foot to 1.5 feet from late fall to midspring. Slope is 0 to 2 percent.

Muckalee soils are geographically associated with Meggett soils. Meggett soils are in a fine family.

Typical pedon of Muckalee loamy sand, in an area of Meggett-Muckalee complex, 1.5 miles west of Red Store crossroads and Georgia Highway 91 on county road; 900 feet south of road; in Baker County.

A1—0 to 5 inches; very dark grayish brown (10YR 3/2) loamy sand; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear wavy boundary.
C1g—5 to 16 inches; gray (10YR 5/1) loamy sand; weak fine granular structure; very friable; many fine and medium roots; thin layers of grayish brown (10YR 5/2) and light gray (10YR 7/1) sandy loam; medium acid; gradual wavy boundary.
C2g—16 to 32 inches; gray (10YR 5/1) sandy loam; weak fine granular structure; very friable; common medium roots; thin layers of light gray (10YR 7/1) and yellowish brown (10YR 5/6) sandy clay loam and sand; slightly acid; gradual wavy boundary.
C3g—32 to 50 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; few medium roots; thin layers of light gray (10YR 7/1) and yellowish brown (10YR 5/6) sand and sandy clay loam; neutral; gradual wavy boundary.
C4g—50 to 65 inches; gray (10YR 5/1) sandy clay loam; weak fine granular structure; very friable; thin layers of light gray (10YR 7/1) and yellowish brown (10YR 5/6) sand; neutral.

Thickness of the sandy and loamy alluvium is 65 inches or more. The soil is strongly acid or medium acid in the surface layer and neutral or mildly alkaline in the subsoil.

The A horizon is 4 to 8 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 1 or 2.

The Cg horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. It has streaks that have hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 2, 4, 6, or 8. Individual layers are sand, loamy sand, sandy loam, or sandy clay loam.

Norfolk Series

The Norfolk series consists of well drained, moderately permeable soils that formed dominantly in loamy marine sediment on uplands. Slope is 0 to 5 percent.

Norfolk soils are geographically associated with Goldsboro, Orangeburg, and Wagram soils. Goldsboro soils are moderately well drained. Orangeburg soils have a red Bt horizon. Wagram soils are arenic.

Typical pedon of Norfolk loamy sand, 0 to 2 percent slopes, 1,320 feet south of Hopeful on county road; 100 feet west of road; in Mitchell County.

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many very fine roots; medium acid; abrupt smooth boundary.
B1—10 to 14 inches; yellowish brown (10YR 5/6) sandy loam; weak fine subangular blocky structure; very friable; few fine roots; strongly acid; clear smooth boundary.
B21t—14 to 27 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few very fine roots; thin patchy clay films on faces of peds; strongly acid; gradual wavy boundary.
B22t—27 to 48 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; patchy clay films on faces of peds; strongly acid; gradual wavy boundary.
B23t—48 to 72 inches; yellowish brown (10YR 5/8) sandy clay loam; common fine faint strong brown mottles; moderate medium subangular blocky structure; friable; patchy clay films on faces of peds; very strongly acid.

Solum thickness is 60 to 72 inches or more. This soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas. In places, nodules of ironstone make up to 3 percent of the soil.

The A horizon is 7 to 18 inches thick. The Ap horizon has hue of 10YR, value of 3 to 6, and chroma of 2 or 3. The A2 horizon, if present, has hue of 2.5Y or 10YR, value of 4 to 6, and chroma of 4.

The B1 horizon has hue of 10YR, value of 5 or 6, and chroma of 4, 6, or 8.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 or 8. Brownish, reddish, and grayish mottles are in the lower part of the Bt horizon in some pedons.

Orangeburg Series

The Orangeburg series consists of well drained, moderately permeable soils that formed dominantly in loamy marine sediment on uplands. Slope is 0 to 15 percent.

Orangeburg soils are geographically associated with Esto, Faceville, Lucy, Norfolk, and Red Bay soils. Esto and Faceville soils are in a clayey family; additionally, Esto soils have a subsoil that is firm and has brownish and reddish mottles. Lucy soils are arenic. Norfolk soils have a dominantly yellowish brown subsoil. Red Bay soils have a dark red subsoil.

Typical pedon of Orangeburg loamy sand, 2 to 5 percent slopes, 8.7 miles west of Camilla on Georgia Highway 37; 1.2 miles south on Old River Road; 500 feet west of road; in Mitchell County.

Ap—0 to 8 inches; dark brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; many fine roots; slightly acid; abrupt smooth boundary.
A2—8 to 13 inches; yellowish brown (10YR 5/4) loamy sand; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.
B1—13 to 16 inches; yellowish red (5YR 4/6) sandy loam; weak fine subangular blocky structure; friable; many fine roots; few fine pores; strongly acid; clear smooth boundary.
B21t—16 to 30 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; patchy clay films on faces of most peds; many fine and very fine pores; strongly acid; gradual wavy boundary.
B22t—30 to 62 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; patchy clay films on faces of most peds; few fine pores; strongly acid; gradual smooth boundary.
B23t—62 to 72 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few patchy clay bridges on some ped faces; strongly acid.

Solum thickness ranges from 60 to 72 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas. In places few or common nodules of ironstone are throughout the soil.

The A horizon is 6 to 13 inches thick. The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4; or hue of 7.5YR, value of 4 or 5, and chroma of 2 or 4.

The B1 horizon has hue of 5YR and 10YR, value of 4 or 5, and chroma of 4 or 6; or hue of 7.5YR, value of 4 or 5, and chroma of 6 or 8.

The Bt horizon has hue of 5YR and 2.5YR, value of 4 or 5, and chroma of 6 or 8. In some pedons, the B22t horizon has few or common brown and red mottles. The Bt horizon is sandy clay loam or sandy loam.

Osier Series

The Osier series consists of poorly drained, rapidly permeable soils that formed in sandy alluvial sediment on flood plains. The water table is at the surface or within a depth of 1 foot from late fall to early spring. Slope is 0 to 2 percent.

Osier soils are geographically associated with Pelham soils. Pelham soils are in a loamy family.

Typical pedon of Osier sand, in an area of Osier-Pelham complex, 0.3 mile southwest of Lester on Georgia Highway 112; 0.3 mile east on field road; 75 feet north of road; in Mitchell County.

A11—0 to 5 inches; very dark gray (10YR 3/1) sand; weak fine granular structure; very friable; many fine

roots; thin strata of dark gray sand; very strongly acid; abrupt wavy boundary.
A12—5 to 15 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; common fine roots; few thin strata of gray loamy sand; strongly acid; clear wavy boundary.
C1g—15 to 24 inches; grayish brown (10YR 5/2) sand; single grained; loose; few partly decayed roots; strongly acid; gradual wavy boundary.
C2g—24 to 34 inches; gray (10YR 6/1) sand; single grained; loose; strongly acid; gradual wavy boundary.
C3g—34 to 46 inches; gray (10YR 6/1) sand; few medium distinct brownish yellow (10YR 6/6) mottles; single grained; very friable; strongly acid; clear wavy boundary.
C4g—46 to 72 inches; light brownish gray (10YR 6/2) coarse sand; few medium distinct brownish yellow (10YR 6/8) mottles; single grained; very friable; strongly acid.

Thickness of the sandy alluvium is 72 inches or more. The soil is very strongly acid or strongly acid throughout. In most horizons, thin strata ranging in texture from sand to sandy loam are below a depth of 40 inches.

The A horizon is 3 to 15 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 1 or 2.

The Cg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. It is coarse sand or sand. It has few or common grayish, yellowish, and brownish mottles.

Pelham Series

The Pelham series consists of poorly drained, moderately permeable soils that formed in sandy and loamy marine sediment. These soils are on smooth areas, in depressions, and near drainageways. The water table commonly is at a depth of 0.5 foot to 1.5 feet from midwinter to midspring. Slope is 0 to 2 percent.

Pelham soils are geographically associated with Bonneau, Grady, and Osier soils. Bonneau soils are moderately well drained. Grady soils have an A horizon less than 20 inches thick and a clayey subsoil. Osier soils are sandy throughout.

Typical pedon of Pelham loamy sand, 2.2 miles east of Baker County line on Georgia Highway 37; 5.5 miles northwest on county paved road; 1,584 feet north of Bethel Church and county road; in Mitchell County.

A1—0 to 4 inches; black (10YR 2/1) loamy sand; weak fine granular structure; very friable; common fine and medium roots; very strongly acid; abrupt smooth boundary.
A21—4 to 15 inches; very dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; common fine and medium roots; very strongly acid; clear wavy boundary.
A22—15 to 22 inches; gray (10YR 6/1) loamy sand; few medium distinct brownish yellow (10YR 6/6) mottles; weak fine granular structure; very friable; very strongly acid; clear wavy boundary.
B1g—22 to 30 inches; light gray (10YR 7/1) sandy loam; weak medium subangular blocky structure; very strongly acid; gradual wavy boundary.
B21tg—30 to 62 inches; light gray (10YR 7/1) sandy clay loam; few coarse prominent yellowish brown (10YR 5/8) and dark red (2.5YR 3/6) mottles; moderate medium subangular blocky structure; friable; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.
B22tg—62 to 72 inches; light gray (10YR 7/1) sandy clay loam; many coarse distinct yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8) mottles; coarse medium subangular blocky structure; friable; patchy clay films on faces of peds; very strongly acid.

Solum thickness is 72 to 80 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A1 horizon is 3 to 10 inches thick. It has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. The A2 horizon is 17 to 26 inches thick. It has hue of 10YR or 5Y, value of 4 to 7, and chroma of 1 or 2; or hue of 2.5Y, value of 4 to 7, and chroma of 2. Few or common brownish or yellowish mottles are in some pedons.

The B1g horizon has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. Some pedons contain few or common yellowish or brownish mottles.

The Btg horizon has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. It has few to many brownish, yellowish, and reddish mottles. This horizon is sandy clay loam or sandy loam.

Red Bay Series

The Red Bay series consists of well drained, moderately permeable soils that formed dominantly in loamy marine sediment on uplands. Slope is 0 to 5 percent.

Red Bay soils are geographically associated with Greenville, Lucy, and Orangeburg soils. Greenville soils are in a clayey family. Lucy soils have a dominantly red subsoil and are arenic. Orangeburg soils have a dominantly red subsoil.

Typical pedon of Red Bay loamy sand, 2 to 5 percent slopes, 4.3 miles northwest of Patmos on paved road; 1,056 feet east of road; in Baker County.

Ap—0 to 10 inches; dark reddish brown (5YR 3/3) loamy sand; weak fine granular structure; very friable; many fine and very fine roots; strongly acid; abrupt smooth boundary.

B1—10 to 16 inches; dark reddish brown (2.5YR 3/4) sandy loam; weak fine subangular blocky structure; friable; common fine and very fine roots; material from Ap horizon in root holes; strongly acid; clear smooth boundary.
B21t—16 to 54 inches; dark red (2.5YR 3/6) sandy clay loam; weak medium subangular blocky structure; friable; few very fine roots; mixing of B1 horizon in root holes; few patchy clay films on faces of most peds; very strongly acid; gradual smooth boundary.
B22t—54 to 72 inches; dark red (2.5YR 3/6) sandy clay loam; weak medium subangular blocky structure; friable; most peds bridged with clay; very strongly acid.

Solum thickness is 60 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 6 to 11 inches thick. It has hue of 5YR, value of 3, and chroma of 2 or 3.

The B1 horizon has hue of 5YR or 2.5YR, value of 3, and chroma of 4 or 6.

The Bt horizon has hue of 2.5YR or 10R, value of 3, and chroma of 6. It is dominantly sandy clay loam but ranges to sandy loam.

Suffolk Series

The Suffolk series consists of well drained, moderately permeable soils that formed mainly in loamy marine sediment. These soils are on terraces of the larger streams. Slope is 0 to 2 percent.

Suffolk soils are geographically associated with Bigbee, Hornsville, Maxton, and Wahee soils. Excessively drained Bigbee soils are sandy throughout. Moderately well drained Hornsville soils have a clayey subsoil and a thicker solum. Maxton soils have a dominantly reddish subsoil. Somewhat poorly drained Wahee soils have a clayey subsoil and a thicker solum.

Typical pedon of Suffolk loamy fine sand, 0 to 2 percent slopes; 0.4 mile north of rifle range on Ichaway Plantation and 0.4 mile southeast on road in pine forest, 150 feet east of road; in Baker County.

A1—0 to 2 inches; dark grayish brown (10YR 4/2) loamy fine sand; weak fine granular structure; very friable; few fine and medium roots; strongly acid; clear smooth boundary.
A2—2 to 14 inches; light olive brown (2.5Y 5/4) loamy fine sand; weak medium granular structure; very friable; few fine and medium roots; strongly acid; gradual smooth boundary.
B1—14 to 20 inches; yellowish brown (10YR 5/6) sandy loam; weak fine subangular blocky structure; friable; few fine and medium roots; strongly acid; clear smooth boundary.
B25—20 to 34 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; thin patchy clay films on faces of peds; few fine roots; strongly acid; gradual wavy boundary.
B3—34 to 46 inches; yellowish brown (10YR 5/6) sandy loam; weak fine subangular blocky structure; friable; strongly acid; gradual wavy boundary.
C—46 to 72 inches; brownish yellow (10YR 6/6) loamy sand, few small pockets of white (10YR 8/2) sand; single grained; loose; strongly acid.

Solum thickness is 42 to 46 inches. The soil is strongly acid except where the surface layer has been limed.

The A horizon is 11 to 14 inches thick. The A1 horizon or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2. The A2 horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4.

The B1 horizon has hue of 10YR, value of 5, and chroma of 4 or 6.

The B2t horizon has hue of 10YR, value of 5 or 6, and chroma of 6 or 8. Some pedons have strong brown mottles.

The B3 horizon has pockets of clean white sand and strong brown mottles in some pedons.

The C horizon has hue of 10YR, value of 6 or 7, and chroma of 6. Pockets of clean white sand are in some pedons.

Susquehanna Series

The Susquehanna series consists of somewhat poorly drained, very slowly permeable soils that formed in clayey marine sediment on uplands. The water table commonly is at a depth of more than 6 feet. These soils are wet during periods of high rainfall, but they do not have a free water table. Slope is 2 to 5 percent.

Susquehanna soils are geographically associated with Esto soils. The associated soils are well drained.

Typical pedon of Susquehanna sandy loam, 2 to 5 percent slopes, in an area of Esto-Susquehanna sandy loams, 2 to 5 percent slopes; 10.1 miles northeast of Camilla on Georgia Highway 112; 1.8 miles southwest of railroad crossing; 155 feet east of highway; in Mitchell County.

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; friable; common fine and medium roots; strongly acid; abrupt smooth boundary.
B21t—4 to 9 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; firm; few fine roots; thin continuous clay films on faces of most peds; very strongly acid; clear wavy boundary.
B22t—9 to 17 inches; yellowish red (5YR 5/6) clay; common medium distinct red (2.5YR 5/8) mottles, and common medium prominent light gray (10YR 7/2) mottles; strong medium subangular blocky structure; very firm; very plastic; few fine roots;

continuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23t—17 to 55 inches; mottled light gray (10YR 7/1), yellowish red (5YR 5/6), and red (2.5YR 5/8) clay; strong medium subangular blocky structure; very firm; very plastic; continuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

B24tg—55 to 71 inches; light gray (5Y 7/1) clay; common medium prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; very firm; very plastic; continuous clay films on faces of peds; very strongly acid.

Solum thickness is 60 to 70 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The Ap horizon has hue of 10YR, value of 4, and chroma of 2 or 3. The A1 horizon, if present, has hue of 10YR, value of 4, and chroma of 1 or 2. There are a few nodules of ironstone in some pedons.

The upper part of the Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6; it has few or common gray, red, or brown mottles. The lower part of the Bt horizon has hue of 10YR or 5Y, value of 4 to 7, and chroma of 1 or 2; it has few to many red and brown mottles. In some pedons, the lower part of the Bt horizon is mottled red, brown, and gray and has no dominant matrix color. The Bt horizon is clay or silty clay.

Tifton Series

The Tifton series consists of well drained, moderately permeable soils that formed dominantly in loamy marine sediment on uplands. Slope is 0 to 8 percent.

Tifton soils are geographically associated with Carnegie, Norfolk, and Orangeburg soils. Carnegie soils are in a clayey family and contain 5 percent or more plinthite between depths of 18 and 22 inches. Norfolk and Orangeburg soils are made up of less than 5 percent pebbles and plinthite; in addition, Orangeburg soils have a dominantly red subsoil.

Typical pedon of Tifton loamy sand, 0 to 2 percent slopes; 2.2 miles west on Georgia Highway 262 from the intersection with Georgia Highway 93; 1,584 feet south of highway; in Mitchell County.

Apcn—0 to 10 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many nodules of ironstone, very strongly acid; abrupt wavy boundary.

B1cn—10 to 13 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; many nodules of ironstone; very strongly acid; clear wavy boundary.

B21tcn—13 to 36 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; common nodules of ironstone; sand grains coated or bridged with clay; very strongly acid; gradual wavy boundary.

B22tcn—36 to 47 inches; yellowish brown (10YR 5/6) sandy clay loam; few fine prominent red mottles and common medium faint strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few nodules of ironstone; about 5 percent nodular plinthite; thin patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23t—47 to 62 inches; strong brown (7.5YR 5/8) sandy clay loam; few fine faint brownish yellow and common medium prominent red (2.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few nodules of ironstone; 10 percent platy and nodular plinthite; very strongly acid.

Solum thickness is 60 to 70 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The Ap horizon is 6 to 10 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 2 or 3; hue of 2.5Y, value of 3 to 5, and chroma of 2; or hue of 2.5Y, value of 4 or 5, and chroma of 4. The volume of nodules of ironstone ranges from 5 to 15 percent. The Ap horizon is loamy sand or sandy loam.

The B1 horizon has hue of 10YR, value of 5 or 6, and chroma of 4 or 6. It is 5 to 15 percent, by volume, nodules of ironstone.

The Bt horizon has hue of 10YR or 7.5YR, value of 5, and chroma of 4, 6, or 8. The B22t and B23t horizons have few or common red, yellow, and brown mottles. The B22t horizon and B23t horizons contain from 5 to 15 percent plinthite.

Troup Series

The Troup series consists of well drained soils that have a moderately permeable subsoil. These soils formed in sandy and loamy marine sediment on uplands. Slope is 0 to 8 percent.

Troup soils are geographically associated with Lucy, Norfolk, Orangeburg, and Wagram soils. Lucy and Wagram soils are arenic. Orangeburg and Norfolk soils have an A horizon less than 20 inches thick.

Typical pedon of Troup sand, 0 to 5 percent slopes, on Georgia Highway 91; 1.0 mile north of the intersection of Georgia Highways 91 and 200; 3.9 miles northwest on Clear Lake Road; 528 feet west of road; in Baker County.

A1—0 to 4 inches; dark brown (10YR 4/3) sand; weak fine granular structure; loose; many fine and medium roots; strongly acid; clear smooth boundary.

A21—4 to 16 inches; yellowish brown (10YR 5/6) sand; single grained; loose; many fine and medium roots; strongly acid; gradual wavy boundary.
A22—16 to 41 inches; light yellowish brown (10YR 6/4) sand; single grained; loose; common fine and medium roots; strongly acid; gradual wavy boundary.
A23—41 to 53 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine granular structure; very friable; few fine roots; strongly acid; gradual wavy boundary.
B1—53 to 57 inches; strong brown (7.5YR 5/6) sandy loam; weak medium granular structure; friable; strongly acid; clear smooth boundary.
B2t—57 to 82 inches; strong brown (7.5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few thin clay films on faces of peds; strongly acid.

Solum thickness is 80 to 120 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 40 to 72 inches thick. The Ap horizon or A1 horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. The A2 horizon has hue of 5YR, value of 4 or 5, and chroma of 6; hue of 5YR, value of 5, and chroma of 8; hue of 7.5YR, value of 5 or 7, and chroma of 4, 6, or 8; hue of 7.5YR, value of 3 and 4, and chroma of 4; hue of 7.5YR, value of 4, and chroma of 6; hue of 10YR, value of 5 to 7, and chroma of 3, 4, 6, or 8; hue of 10YR, value of 3 or 4, and chroma of 3, 4, or 6.

The B1 horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4, 6, or 8.

The Bt horizon has hue of 10YR to 5YR, value of 5 or 6, and chroma of 4, 6, or 8. It is sandy loam or sandy clay loam.

Wagram Series

The Wagram series consists of well drained soils that have moderately rapid permeability. These soils formed in sandy and loamy marine sediment on uplands. Slope is 0 to 8 percent.

Wagram soils are geographically associated with Lucy, Norfolk, Orangeburg, and Troup soils. Lucy soils have a red Bt horizon. Norfolk and Orangeburg soils have an A horizon less than 20 inches thick; additionally, Orangeburg soils have a red Bt horizon. Troup soils are grossarenic.

Typical pedon of Wagram loamy sand, 0 to 5 percent slopes, 10.7 miles south on Georgia Highway 91 from the intersection with Georgia Highway 37; 0.5 mile southeast on Itchaway Plantation Road; 50 feet north of road; in Baker County.

A1—0 to 6 inches; grayish brown (2.5Y 5/2) loamy sand; weak fine granular structure; very friable; common fine and medium roots; slightly acid; clear smooth boundary.
A2—6 to 19 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine granular structure; very friable; common fine and medium roots; strongly acid; gradual wavy boundary.
A22—19 to 28 inches; light yellowish brown (10YR 6/4) loamy sand; moderate medium granular structure; very friable; few fine and medium roots; strongly acid; gradual wavy boundary.
B1—28 to 34 inches; brownish yellow (10YR 6/6) sandy loam; weak fine subangular blocky structure; friable; few fine roots; strongly acid; gradual wavy boundary.
B21t—34 to 46 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; thin patchy clay films on faces of peds; strongly acid; gradual wavy boundary.
B22t—46 to 82 inches; yellowish brown (10YR 5/8) sandy clay loam; few medium distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; strongly acid.

Solum thickness is 60 to 80 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 22 to 39 inches thick. The A1 horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3; or hue of 2.5Y, value of 4 or 5, and chroma of 2. The A2 horizon has hue of 10YR, value of 4 to 6, and chroma of 3, 4, or 6; or hue of 7.5YR, value of 4 to 6, and chroma of 4 or 6.

The Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 or 8. If present, mottles are red, brown, and yellow below a depth of 46 inches. Gray mottles commonly are at a depth of 60 inches or more. The Bt horizon is sandy clay loam or sandy loam.

Wahee Series

The Wahee series consists of somewhat poorly drained, slowly permeable soils that formed in loamy and clayey sediment. These soils are on terraces near the larger streams. The water table is at a depth of 0.5 foot to 1.5 feet from early winter to early spring. Slope is 0 to 2 percent.

Wahee soils are geographically associated with Hornsville and Maxton soils. Hornsville soils are moderately well drained. Well drained Maxton soils have less clay in the subsoil and a thinner solum.

Typical pedon of Wahee fine sandy loam, 0 to 2 percent slopes; 2.5 miles south of Red Store Crossroads; on Georgia Highway 91; 0.4 mile west of the highway on a field road; 50 feet south of road; in Baker County.

A1—0 to 4 inches; very dark gray (10YR 3/1) fine sandy loam; weak fine granular structure; friable; many fine

and medium roots; strongly acid; clear smooth boundary.

A2—4 to 10 inches; grayish brown (2.5Y 5/2) fine sandy loam; moderate fine granular structure; friable; many fine and medium roots; strongly acid; clear smooth boundary.

B1—10 to 15 inches; light yellowish brown (2.5Y 6/4) sandy clay loam that has pockets of sandy loam; few medium distinct brownish yellow (10YR 6/8) and gray (10YR 6/1) mottles; weak medium subangular blocky structure; friable; very strongly acid; abrupt wavy boundary.

B21t—15 to 20 inches; pale olive (5Y 6/3) clay; common medium distinct yellowish brown (10YR 5/8) and yellowish red (5YR 4/8) mottles; moderate medium subangular blocky structure; firm; few fine pores; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22tg—20 to 35 inches; gray (5Y 6/1) clay; common medium distinct yellowish brown (10YR 5/8) mottles and few common prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; firm; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23tg—35 to 50 inches; gray (5Y 6/1) clay; common medium distinct yellowish brown (10YR 5/8) mottles and common medium prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; firm; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B3g—50 to 65 inches; light gray (10YR 7/2) sandy clay loam; common medium distinct brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable; few fine pores; very strongly acid.

Solum thickness is 65 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 8 to 14 inches thick. The A1 horizon or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. The A2 horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 4.

The B1 horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 or 6.

The B21t horizon has the same colors as the B1 or B22t horizon. The B22t and B3g horizons have hue of 10YR or 5Y, value of 5 to 7, and chroma of 1 or 2; or hue of 2.5Y, value of 5 to 7, and chroma of 2. They have common or many yellow, gray, brown, and red mottles. The Bt horizon commonly is clay but ranges to clay loam. The B3g horizon is sandy clay or sandy clay loam.

Formation of the Soils

This section discusses the factors of soil formation and relates them to soils in the survey area. It also explains the processes of soil formation.

Soil characteristics are determined by the physical and mineral composition of the parent material; the climate under which the parent material accumulated and has existed since accumulation; the plant and animal life on and in the soil; the relief, or lay of the land; and the length of time that the forces of soil formation have acted on the soil material (*4*). All of these factors influence every soil, but the significance of each factor varies from place to place. In one area, one factor may dominate soil formation; in another area, a different factor may be the most important.

The interrelationships among these five factors is complex, and the effects of any one factor cannot be isolated and completely evaluated. It is convenient, however, to discuss each factor separately and to indicate the probable effects of each.

Parent Material

Parent material is the unconsolidated mass in which soil forms. It is largely responsible for the chemical and mineralogical composition of the soil. Baker and Mitchell Counties are underlain by Coastal Plain sedimentary rock (*5*). Sandy and loamy marine sediment is the parent material that commonly overlies the rock.

The Ocala Limestone Formation of the Tertiary Period underlies Baker County and the western one-third of Mitchell County. The well drained Lucy, Norfolk, Orangeburg, and Wagram soils are the main soils that formed on uplands in the marine sediment over Ocala limestone. These soils have a brownish sandy surface layer and subsurface layer and a brownish or reddish loamy subsoil. Of lesser extent are the well drained Red Bay, Tifton, and Troup soils, and the poorly drained Grady soils.

The Suwannee Limestone Formation and its residuum, which are of the Tertiary Period also, parallel the Ocala Limestone Formation to the east in Mitchell County. This formation lies north and south in an area about 4 to 8 miles wide. The well drained Tifton and Norfolk soils and the moderately well drained Goldsboro soils are the main soils that formed on uplands in the marine sediment over Suwannee Limestone. Commonly, these soils have a brownish, sandy surface layer and a brownish or brownish mottled loamy subsoil. Of lesser extent are the well drained Esto soils and the poorly drained Coxville soils.

The Neogene Undifferentiated Formation of the Tertiary Period underlies about 8 to 10 square miles of Mitchell County to the west and in the vicinity of Sales City. A small area is in the extreme northeastern part of Mitchell County. The well drained Esto and Norfolk soils and the moderately well drained Goldsboro soils are the main soils that formed on uplands in the marine sediment. These soils have a brownish loamy or sandy surface layer and a brownish or brownish mottled loamy or clayey subsoil. Of lesser extent are the well drained Tifton soils.

The Miccosukee and Hawthorn Formations of the Tertiary Period underlie the southeastern part of Mitchell County. The well drained Tifton and Norfolk soils are the main soils that formed on uplands in the marine sediment over these formations. These soils are dominantly brownish throughout. Commonly, they have a sandy surface layer and a loamy subsoil. Of lesser extent are the well drained Esto soils and the moderately well drained Goldsboro soils.

Stream terraces are most extensive near the Flint River and Ichawaynochaway Creek. The soils on these terraces formed in more recent sediment than did the soils on uplands. However, this sediment is older than that on the lower lying alluvial plain. The moderately well drained Hornsville soils and the somewhat poorly drained Wahee soils are the main soils that formed on stream terraces. These soils have a brownish or grayish loamy surface layer and a dominantly reddish clayey subsoil that is mottled in the lower part, or they have a subsoil that is mottled throughout. Of lesser extent are the excessively drained Bigbee soils and the well drained Maxton and Suffolk soils.

Stream alluvium is adjacent to all the streams in the survey area. The soils in this alluvium formed more recently than did the soils that formed on uplands and stream terraces. Poorly drained Meggett and Muckalee soils are the main soils on flood plains in Baker County. They are dominantly grayish, and are clayey or loamy throughout. Of lesser extent in Baker County are the poorly drained Osier and Pelham soils, which are the main soils on flood plains in Mitchell County. They are grayish and sandy throughout, or they are grayish and have a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil.

Plants and Animals

The role of plants, animals, and other organisms is significant in soil development. Plants and animals add organic matter and nitrogen, increase or decrease the content of plant nutrients, and change soil structure and porosity.

Plants recycle nutrients, accumulate organic matter, and provide food and cover for animals. Plants stabilize the surface layer and protect the soils from temperature extremes so that soil-forming processes can continue.

The soils in Baker and Mitchell Counties formed under a succession of briars, brambles, and woody plants that yielded to pines and hardwood trees. Later, the hardwoods suppressed most other plants and became the climax vegetation.

Animals rearrange soil material by roughening the surface, forming and filling channels, and shaping the peds and voids. Bacteria, fungi, and other micro-organisms hasten decomposition of organic matter and increase the release of minerals for plant growth. The soil is mixed by ants, wasps, worms, and spiders that make channels; by crustacea, such as crabs and crayfish; and by turtles and foxes that dig burrows. Humans affect the soil-forming process by tilling the crops, removing natural vegetation and establishing different plants, and reducing or increasing fertility.

The net gains and losses caused by plants and animals in the soil-forming process are important in Baker and Mitchell Counties. However, the relationship between plants and animals, climate, and parent material is very close; therefore, the soils do not differ significantly because of the role of plants and animals.

Climate

The present climate of Baker and Mitchell Counties is thought to be similar to the climate that existed as the soils formed. The relatively high rainfall and warm temperature contribute to rapid soil formation and are the two most important climatic features that relate to soil properties.

Water from precipitation is essential in soil formation. It dissolves soluble materials and is used by plants and animals. It transports material from one layer of the soil to another layer or from one area to another area.

Soils in Baker and Mitchell Counties formed under a thermic temperature regime; that is, the mean annual soil temperature at a depth of 20 inches is 59 to 72 degrees F. Based upon the mean annual air temperature, it is estimated that the mean annual soil temperature in Baker and Mitchell Counties is about 67 or 68 degrees F. The rate of chemical reactions and other processes in the soil depends to some extent on temperature. In addition, temperature affects the type and quantity of vegetation, the amount and kind of organic matter, and the rate of decomposition of organic matter.

Relief

Relief is the elevations, or inequalities, of land surface considered collectively. Color of the soil, wetness, thickness of the A horizon, content of organic matter, and plant cover are commonly related to relief. In Baker and Mitchell Counties, the obvious effects of relief are color of the soil and wetness.

Norfolk and Tifton soils have mainly a yellowish brown subsoil; Grady and Coxville soils are primarily gray throughout the subsoil. This color difference results from a difference in relief and a corresponding difference in internal drainage. Norfolk and Tifton soils are higher lying and better drained than the other soils; therefore, the soil material is more completely oxidized and the subsoil is browner.

The movement of water across the surface and through the soil is controlled to a large extent by relief. Water flowing over the soil commonly carries solid particles and causes erosion or deposition, depending on the kind of relief. In sloping areas, more water runs off and less water enters the soil, so the soils in these areas are drier. Lower lying areas receive the water that flows from and through the higher lying soils, and the soils in these areas are commonly wetter.

Time

The length of time that soil-forming factors act on the parent material to a large degree determines the characteristics of the soil. Determinations of when soil formation began in the survey area are not exact, but most soils in Baker and Mitchell Counties are considered mature. A mature soil is in equilibrium with the environment. It has readily recognized pedogenic horizons, and the content of carbon decreases regularly as depth increases. Some areas of Norfolk and Tifton soils are on broad, stable landscapes where the soil-forming processes have been active for thousands of years. These mature soils have a thick solum and well expressed zones of eluviation and illuviation.

Osier soils receive sediment annually from floodwaters. These young soils are stratified and are not old enough to have a zone of illuviation. Young soils do not have pedogenic horizons. The content of carbon decreases irregularly as depth increases.

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Glossary

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 40-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Medium	6 to 9
High	9 to 12
Very high	more than 12

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Climax vegetation. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of

drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil is not a source of gravel or sand for construction purposes.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fine textured soil. Sandy clay, silty clay, and clay.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An

explanation of the subdivisions is given in the *Soil Survey Manual*. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A horizon to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms

are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered, or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in

diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to insure satisfactory performance of the soil for a specific use.

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the

earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Recorded in the period 1951-79 at Camilla, Georgia]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days[1]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	62.5	39.3	50.9	81	15	183	4.57	2.01	6.74	7	.0
February	65.8	41.1	53.5	83	21	188	4.84	2.76	6.68	7	.1
March	73.3	47.6	60.5	88	27	342	5.07	2.93	6.96	7	.0
April	81.2	54.4	67.8	92	37	534	4.44	1.62	6.78	5	.0
May	87.3	61.5	74.4	98	44	756	4.38	1.84	6.52	7	.0
June	91.8	67.9	79.9	102	55	897	4.89	2.35	7.09	7	.0
July	93.0	70.5	81.8	101	62	986	6.02	3.48	8.26	9	.0
August	92.8	70.2	81.5	99	61	977	4.51	2.37	6.39	7	.0
September	89.3	66.9	78.1	99	52	843	4.05	1.71	6.02	6	.0
October	81.0	55.1	68.1	93	33	561	1.97	.31	3.25	3	.0
November	71.0	45.5	58.3	86	24	263	2.84	.94	4.39	5	.0
December	64.2	40.6	52.4	81	19	159	4.08	2.28	5.67	7	.0
Yearly:											
Average	79.4	55.1	67.3	---	---	---	---	---	---	---	---
Extreme	---	---	---	103	14	---	---	---	---	---	---
Total	---	---	---	---	---	6,689	51.66	43.33	59.98	77	.1

[1] A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50° F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Recorded in the period 1951-79 at Camilla, Georgia]

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	February 27	March 18	March 28
2 years in 10 later than--	February 18	March 10	March 22
5 years in 10 later than--	January 30	February 23	March 12
First freezing temperature in fall:			
1 year in 10 earlier than--	November 19	November 9	October 27
2 years in 10 earlier than--	November 28	November 16	November 2
5 years in 10 earlier than--	December 17	November 30	November 13

TABLE 3.--GROWING SEASON

[Recorded in the period 1951-79 at Camilla, Georgia. The symbol > means more than]

Probability	Length of growing season if daily minimum temperature is---		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	281	246	219
8 years in 10	291	257	228
5 years in 10	313	279	245
2 years in 10	349	302	262
1 year in 10	>365	313	271

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Baker County	Mitchell County	Total-- Area	Total-- Extent
		Acres	Acres	Acres	Pct
AdA	Albany sand, 0 to 2 percent slopes	4,905	2,230	7,135	1.3
BgA	Bigbee sand, 0 to 2 percent slopes	1,545	0	1,545	0.3
BoA	Bonneau loamy sand, 0 to 2 percent slopes	9,084	8,075	17,159	3.1
CaB2	Carnegie sandy loam, 3 to 5 percent slopes, eroded	135	1,985	2,120	0.4
CaC2	Carnegie sandy loam, 5 to 8 percent slopes, eroded	20	5,350	5,370	1.0
CnA	Clarendon loamy sand, 0 to 2 percent slopes	565	2,925	3,490	0.6
Co	Coxville fine sandy loam	120	1,870	1,990	0.4
DpA	Duplin fine sandy loam, 0 to 2 percent slopes	1,805	8,545	10,350	1.9
EnB	Esto-Norfolk complex, 2 to 5 percent slopes	160	3,215	3,375	0.6
EnC	Esto-Norfolk complex, 5 to 8 percent slopes	340	1,365	1,705	0.3
EoD	Esto-Orangeburg complex, 8 to 15 percent slopes	240	520	760	0.1
EsB	Esto-Susquehanna sandy loams, 2 to 5 percent slopes	0	8,980	8,980	1.6
EsC	Esto-Susquehanna sandy loams, 5 to 8 percent slopes	0	3,060	3,060	0.6
FeA	Faceville sandy loam, 0 to 2 percent slopes	850	190	1,040	0.2
FeB	Faceville sandy loam, 2 to 5 percent slopes	2,690	1,525	4,215	0.8
FsC2	Faceville sandy clay loam, 5 to 8 percent slopes, eroded	360	435	795	0.1
GoA	Goldsboro loamy sand, 0 to 2 percent slopes	4,320	25,975	30,295	5.5
Gr	Grady fine sandy loam	20,910	14,925	35,835	6.5
GsA	Greenville sandy loam, 0 to 2 percent slopes	1,550	155	1,705	0.3
GsB	Greenville sandy loam, 2 to 5 percent slopes	980	75	1,055	0.2
HvA	Hornsville fine sandy loam, 0 to 2 percent slopes	5,185	4,960	10,145	1.8
KeC	Kershaw sand, 2 to 12 percent slopes	380	590	970	0.2
LkB	Lakeland sand, 2 to 5 percent slopes	1,320	1,550	2,870	0.5
LmB	Lucy loamy sand, 0 to 5 percent slopes	20,670	12,465	33,135	6.0
LmC	Lucy loamy sand, 5 to 8 percent slopes	1,060	270	1,330	0.2
MaA	Maxton loamy sand, 0 to 2 percent slopes	700	430	1,130	0.2
Mm	Meggett-Muckalee complex	6,005	0	6,005	1.1
NoA	Norfolk loamy sand, 0 to 2 percent slopes	11,125	30,070	41,195	7.4
NoB	Norfolk loamy sand, 2 to 5 percent slopes	5,770	18,520	24,290	4.4
OeA	Orangeburg loamy sand, 0 to 2 percent slopes	25,475	4,895	30,370	5.5
OeB	Orangeburg loamy sand, 2 to 5 percent slopes	17,590	8,785	26,375	4.8
OeC	Orangeburg loamy sand, 5 to 8 percent slopes	1,570	995	2,565	0.5
Op	Osier-Pelham complex	1,715	15,075	16,790	3.0
Pe	Pelham loamy sand	6,260	1,820	8,080	1.5
ReA	Red Bay loamy sand, 0 to 2 percent slopes	1,725	0	1,725	0.3
ReB	Red Bay loamy sand, 2 to 5 percent slopes	9,640	0	9,640	1.7
SuA	Suffolk loamy fine sand, 0 to 2 percent slopes	615	0	615	0.1
TfA	Tifton loamy sand, 0 to 2 percent slopes	2,205	24,970	27,175	4.9
TfB	Tifton loamy sand, 2 to 5 percent slopes	2,400	38,884	41,284	7.4
TsC2	Tifton sandy loam, 5 to 8 percent slopes, eroded	30	4,055	4,085	0.7
TwB	Troup sand, 0 to 5 percent slopes	16,705	24,425	41,130	7.4
TwC	Troup sand, 5 to 8 percent slopes	1,550	471	2,021	0.4
WaB	Wagram loamy sand, 0 to 5 percent slopes	31,390	38,770	70,160	12.7
WaC	Wagram loamy sand, 5 to 8 percent slopes	255	770	1,025	0.2
WeA	Wahee fine sandy loam, 0 to 2 percent slopes	5,345	1,910	7,255	1.3
	Total	227,264	326,080	553,344	100.0

TABLE 5.--IMPORTANT FARMLAND

[Acreage totals as of 1980. Soils not listed do not qualify as prime farmland or as additional farmland of statewide importance]

Map symbol and soil name	Prime farmland	Additional farmland of statewide importance
	Acres	Acres
AdA---------- Albany	---	7,135
BgA---------- Bigbee	---	1,545
BoA---------- Bonneau	---	17,159
CaB2---------- Carnegie	---	2,120
CaC2---------- Carnegie	---	5,370
CnA---------- Clarendon	3,490	---
DpA---------- Duplin	10,350	---
EnB---------- Esto-Norfolk	---	3,375
EnC---------- Esto-Norfolk	---	1,705
FeA---------- Faceville	1,040	---
FeB---------- Faceville	4,215	---
GoA---------- Goldsboro	30,295	---
GsA---------- Greenville	1,705	---
GsB---------- Greenville	1,055	---
HvA---------- Hornsville	10,145	---
LmB---------- Lucy	---	33,135
LmC---------- Lucy	---	1,330
MaA---------- Maxton	1,130	---
NoA---------- Norfolk	41,195	---
NoB---------- Norfolk	24,290	---
OeA---------- Orangeburg	30,370	---
OeB---------- Orangeburg	26,375	---
OeC---------- Orangeburg	2,565	---

TABLE 5.--IMPORTANT FARMLAND--Continued

Map symbol and soil name	Prime farmland	Additional farmland of statewide importance
ReA		
Red Bay	1,725	---
ReB		
Red Bay	9,640	---
SuA		
Suffolk	615	---
TfA		
Tifton	27,175	---
TfB		
Tifton	41,284	---
TsC2		
Tifton	4,085	---
WaB		
Wagram	---	70,160
WaC		
Wagram	---	1,025
WeA		
Wahee	---	7,255
Total	272,744	151,314

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields in the N columns are for nonirrigated soils; those in the I columns are for irrigated soils. Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Corn		Soybeans		Peanuts		Tobacco	Improved bermudagrass		Bahiagrass
	N	I	N	I	N	I	I	N	I	N
	Bu	Bu	Bu	Bu	Lb	Lb	Lb	AUM*	AUM*	AUM*
AdA---- Albany	65	105	25	33	---	---	2,100	7.0	8.0	6.5
BgA---- Bigbee	60	160	25	40	2,200	3,850	2,000	7.5	10.0	7.5
BoA---- Bonneau	85	180	35	50	---	---	2,800	8.5	10.5	8
CaB2---- Carnegie	65	105	30	35	3,200	4,300	2,400	6.5	8.5	7.0
CaC2---- Carnegie	55	90	25	30	---	---	---	6.0	7.5	6.5
CnA---- Clarendon	110	175	40	50	---	---	3,500	10.5	13.0	10.0
Co---- Coxville	---	---	---	---	---	---	---	---	---	---
DpA---- Duplin	110	175	50	60	---	---	2,800	10.5	13.0	10.0
EnB---- Esto-Norfolk	70	110	35	40	2,600	3,500	2,600	8.0	10.0	7.5
EnC---- Esto-Norfolk	54	85	30	35	---	---	---	7.5	9.5	7.0
EoD---- Esto-Orangeburg	---	---	---	---	---	---	---	6.5	8.0	6.0
EsB---- Esto-Susquehanna	---	---	---	---	---	---	---	6.5	7.0	6.0
EsC---- Esto-Susquehanna	---	---	---	---	---	---	---	6.0	7.0	5.5
FeA---- Faceville	115	185	45	50	4,000	4,750	3,000	10.0	12.5	7.0
FeB---- Faceville	115	185	45	50	4,000	4,750	3,000	10.0	12.5	7.0
FsC2---- Faceville	75	120	20	23	2,600	3,100	2,000	8.0	10.0	5.0
GoA---- Goldsboro	125	200	45	55	---	---	3,000	11.0	13.5	9.0
Gr---- Grady	---	---	---	---	---	---	---	---	---	---
GsA---- Greenville	115	185	45	50	4,000	4,750	3,000	10	12.5	7.0
GsB---- Greenville	115	185	45	50	4,000	4,750	3,000	10	12.5	7.0
HvA---- Hornsville	100	160	40	50	---	---	2,600	10.5	13.0	10.0

See footnote at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Corn		Soybeans		Peanuts		Tobacco	Improved bermudagrass		Bahiagrass
	N	I	N	I	N	I	I	N	I	N
	Bu	Bu	Bu	Bu	Lb	Lb	Lb	AUM*	AUM*	AUM*
KeC---- Kershaw	---	---	---	---	---	---	--	3.5	4.5	3.5
LkB---- Lakeland	55	160	20	40	2,000	3,500	1,800	7.0	9.5	7.0
LmB---- Lucy	80	180	33	50	3,000	4,500	3,000	8.0	10.5	8.5
LmC---- Lucy	70	160	25	45	2,500	3,750	2,800	7.5	10.0	8.5
MaA---- Maxton	110	175	45	55	3,500	4,700	2,900	9.0	12.0	7.0
Mm---- Meggett-Muckalee	---	---	---	---	---	---	---	---	---	---
NoA---- Norfolk	120	190	45	55	4,000	5,400	3,000	10.5	14.0	8.5
NoB---- Norfolk	120	190	45	55	4,000	5,400	3,000	10.5	14.0	8.5
OeA---- Orangeburg	120	190	45	55	4,000	5,400	3,000	10.5	14.0	8.5
OeB---- Orangeburg	120	190	45	50	4,000	5,400	3,000	10.5	14.0	8.5
OeC---- Orangeburg	95	150	35	40	3,200	4,300	2,500	10.0	12.5	8.0
Op---- Osier-Pelham	---	---	---	---	---	---	---	---	---	---
Pe---- Pelham	---	---	---	---	---	---	---	---	---	---
ReA---- Red Bay	120	190	45	55	4,000	5,400	3,000	10.5	14.0	8.5
ReB---- Red Bay	120	190	45	55	4,000	5,400	3,000	10.5	14.0	8.5
SuA---- Suffolk	130	200	50	60	4,000	5,400	3,500	10.5	14.0	8.5
TfA---- Tifton	115	185	46	55	3,800	5,100	3,300	10.5	14.0	8.5
TfB---- Tifton	115	185	46	55	3,800	5,100	3,300	10.5	14.0	8.5
TsC2---- Tifton	80	130	34	40	3,000	4,050	2,400	9.0	11.5	7.0
TwB---- Troup	60	160	25	45	2,200	3,850	2,000	7.0	9.5	7.0
TwC---- Troup	55	130	22	35	1,800	3,000	1,800	7.0	9.5	7.0
WaB---- Wagram	75	180	25	50	2,900	4,350	2,900	8.0	10.5	8.5
WaC---- Wagram	70	160	20	45	2,500	3,750	2,800	7.5	10.0	8.5

See footnote at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Corn		Soybeans		Peanuts		Tobacco	Improved bermudagrass		Bahia-grass
	N	I	N	I	N	I	I	N	I	N
	Bu	Bu	Bu	Bu	Lb	Lb	Lb	AUM*	AUM*	AUM*
WeA---------- Wahee	110	175	45	55	---	---	2,600	9.0	11.0	8.0

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

TABLE 7.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Dashes indicate no acreage]

Class	Total acreage	Major management concerns (Subclass)		
		Erosion (e)	Wetness (w)	Soil problem (s)
		Acres	Acres	Acres
I:				
Baker County	44,245	---	---	---
Mitchell County	60,710	---	---	---
II:				
Baker County	117,434	39,070	17,220	61,144
Mitchell County	171,414	67,789	44,315	59,310
III:				
Baker County	26,365	1,895	4,905	19,565
Mitchell County	37,945	10,250	2,230	25,465
IV:				
Baker County	3,710	720	120	2,870
Mitchell County	20,021	16,130	1,870	2,021
V:				
Baker County	28,885	---	28,885	---
Mitchell County	31,820	---	31,820	---
VI:				
Baker County	6,245	240	6,005	---
Mitchell County	3,580	3,580	---	---
VII:				
Baker County	380	---	---	380
Mitchell County	590	---	---	590

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
AdA---------- Albany	2w	Slight	Moderate	Moderate	Loblolly pine-------	95	Loblolly pine, slash pine.
					Slash pine----------	85	
					Longleaf pine-------	80	
BgA---------- Bigbee	2s	Slight	Moderate	Moderate	Loblolly pine-------	88	Loblolly pine.
BoA---------- Bonneau	2s	Slight	Moderate	Moderate	Loblolly pine-------	95	Loblolly pine, longleaf pine.
					Longleaf pine-------	75	
CaB2, CaC2--------- Carnegie	2o	Slight	Slight	Slight	Loblolly pine-------	86	Loblolly pine, slash pine.
					Slash pine----------	86	
					Longleaf pine-------	72	
CnA---------- Clarendon	2w	Slight	Moderate	Slight	Loblolly pine-------	90	Loblolly pine, slash pine, American sycamore, yellow-poplar, sweetgum.
					Slash pine----------	90	
					Sweetgum------------	85	
Co---------- Coxville	2w	Slight	Severe	Moderate	Loblolly pine-------	90	Loblolly pine.
					Longleaf pine-------	---	
					Sweetgum------------	---	
					Blackgum------------	---	
					Water oak-----------	---	
					Willow oak----------	---	
					Water tupelo--------	---	
					Elm-----------------	---	
					Hickory------------	---	
DpA---------- Duplin	2w	Slight	Moderate	Moderate	Loblolly pine-------	90	Loblolly pine, slash pine, yellow-poplar, American sycamore, sweetgum.
					Slash pine----------	90	
					Sweetgum------------	---	
					Blackgum------------	---	
					Southern red oak----	---	
					White oak-----------	---	
					Yellow-poplar-------	100	
EnB,* EnC:* Esto----------	3o	Slight	Slight	Slight	Loblolly pine-------	80	Loblolly pine, slash pine, longleaf pine.
					Longleaf pine-------	65	
					Slash pine----------	80	
Norfolk----------	2o	Slight	Slight	Slight	Loblolly pine-------	86	Slash pine, loblolly pine.
					Longleaf pine-------	72	
					Slash pine----------	86	
EoD:* Esto----------	3o	Slight	Slight	Slight	Loblolly pine-------	80	Loblolly pine, slash pine, longleaf pine.
					Longleaf pine-------	65	
					Slash pine----------	80	
Orangeburg--------	2o	Slight	Slight	Slight	Loblolly pine-------	80	Slash pine, loblolly pine.
					Slash pine----------	86	
					Longleaf pine-------	77	
EsB,* EsC:* Esto----------	3o	Slight	Slight	Slight	Loblolly pine-------	80	Loblolly pine, slash pine, longleaf pine.
					Longleaf pine-------	65	
					Slash pine----------	80	
Susquehanna-------	3c	Slight	Moderate	Slight	Loblolly pine-------	78	Loblolly pine, shortleaf pine.
					Shortleaf pine------	68	

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
FeA, FeB, FsC2----- Faceville	3o	Slight	Slight	Slight	Loblolly pine-------	82	Loblolly pine, slash pine.
					Slash pine----------	80	
					Longleaf pine-------	65	
GoA---------- Goldsboro	2w	Slight	Moderate	Slight	Loblolly pine-------	90	Loblolly pine, slash pine, yellow-poplar, American sycamore, sweetgum.
					Slash pine----------	93	
					Longleaf pine-------	77	
					Sweetgum------------	90	
					Southern red oak----	---	
					White oak-----------	---	
Gr---------- Grady	4w	Slight	Severe	Severe	Baldcypress---------	68	American sycamore, water tupelo.
					Blackgum------------	65	
					Water oak-----------	65	
GsA, GsB---------- Greenville	3o	Slight	Slight	Slight	Loblolly pine-------	85	Loblolly pine, longleaf pine, slash pine.
					Longleaf pine-------	70	
					Slash pine----------	85	
HvA---------- Hornsville	2w	Slight	Moderate	Moderate	Loblolly pine-------	90	Loblolly pine, slash pine, sweetgum, yellow-poplar.
					Slash pine----------	90	
					Sweetgum------------	90	
KeC---------- Kershaw	5s	Slight	Moderate	Severe	Slash pine----------	65	Sand pine, slash pine, longleaf pine.
					Longleaf pine-------	55	
LkB---------- Lakeland	4s	Slight	Moderate	Moderate	Slash pine----------	75	Slash pine, loblolly pine.
					Loblolly pine-------	75	
					Longleaf pine-------	60	
LmB, LmC---------- Lucy	3s	Slight	Moderate	Moderate	Slash pine ---------	85	Slash pine, longleaf pine, loblolly pine.
					Longleaf pine-------	74	
					Loblolly pine-------	85	
MaA---------- Maxton	2o	Slight	Slight	Slight	Loblolly pine-------	90	Loblolly pine, slash pine, yellow-poplar.
					Sweetgum------------	---	
					Yellow-poplar-------	---	
					Slash pine----------	---	
					Southern red oak----	---	
					White oak-----------	---	
Mm:* Meggett----------	1w	Slight	Severe	Severe	Slash pine----------	100	Slash pine, loblolly pine.
					Loblolly pine-------	100	
					Pond pine-----------	75	
					Sweet bay-----------	---	
					Water tupelo--------	---	
					Red maple-----------	---	
Muckalee----------	2w	Slight	Severe	Severe	Sweetgum------------	90	Sweetgum, loblolly pine, American sycamore, eastern cottonwood.
					Loblolly pine-------	90	
					Slash pine----------	90	
					Water oak-----------	90	
					Green ash-----------	85	
					Eastern cottonwood--	100	
					Sweet bay-----------	---	
					Water tupelo--------	---	
					Red maple-----------	---	
NoA, NoB---------- Norfolk	2o	Slight	Slight	Slight	Loblolly pine-------	86	Slash pine, loblolly pine.
					Longleaf pine-------	72	
					Slash pine----------	86	
OeA, OeB, OeC------ Orangeburg	2o	Slight	Slight	Slight	Loblolly pine-------	80	Slash pine, loblolly pine.
					Slash pine----------	86	
					Longleaf pine-------	77	

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
Op:*							
Osier	3w	Slight	Severe	Severe	Slash pine	85	Slash pine, loblolly pine.
					Loblolly pine	87	
					Longleaf pine	69	
					Sweet bay	---	
					Water tupelo	---	
					Red maple	---	
Pelham	2w	Slight	Severe	Severe	Slash pine	90	Slash pine, loblolly pine.
					Loblolly pine	90	
					Longleaf pine	80	
					Sweetgum	80	
					Blackgum	80	
					Water oak	80	
					Sweet bay	---	
					Water tupelo	---	
					Red maple	---	
Pe Pelham	2w	Slight	Severe	Severe	Slash pine	90	Slash pine, loblolly pine.
					Loblolly pine	90	
					Longleaf pine	80	
					Sweetgum	80	
					Blackgum	80	
					Water oak	80	
ReA, ReB Red Bay	2o	Slight	Slight	Slight	Loblolly pine	90	Loblolly pine, slash pine, longleaf pine.
					Slash pine	90	
					Longleaf pine	77	
SuA Suffolk	2o	Slight	Slight	Slight	Loblolly pine	87	Loblolly pine, slash pine, yellow-poplar, sweetgum, American sycamore.
					Slash pine	91	
					Longleaf pine	72	
TfA, TfB, TsC2 Tifton	2o	Slight	Slight	Slight	Loblolly pine	86	Loblolly pine, slash pine.
					Slash pine	86	
					Longleaf pine	72	
TwB, TwC Troup	3s	Slight	Moderate	Moderate	Loblolly pine	77	Loblolly pine, longleaf pine, slash pine.
					Longleaf pine	76	
					Slash pine	85	
WaB, WaC Wagram	3s	Slight	Moderate	Moderate	Loblolly pine	81	Loblolly pine, slash pine, longleaf pine.
					Slash pine	80	
					Longleaf pine	72	
WeA Wahee	2w	Slight	Moderate	Moderate	Loblolly pine	86	Loblolly pine, slash pine, sweetgum, American sycamore, water oak.
					Slash pine	86	
					Sweetgum	90	
					Blackgum	---	
					Water oak	---	
					Swamp chestnut oak	---	
					Willow oak	---	
					Southern red oak	---	

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AdA---------- Albany	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
BgA---------- Bigbee	Severe: floods, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, flooding, too sandy.
BoA---------- Bonneau	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: droughty.
CaB2---------- Carnegie	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: small stones, slope.	Slight----------	Slight.
CaC2---------- Carnegie	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight----------	Slight.
CnA---------- Clarendon	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
Co---------- Coxville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
DpA---------- Duplin	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Slight----------	Slight.
EnB:*					
Esto----------	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight----------	Slight.
Norfolk----------	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
EnC:*					
Esto----------	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight----------	Slight.
Norfolk----------	Slight----------	Slight----------	Severe: slope.	Slight----------	Slight.
EoD:*					
Esto----------	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight----------	Moderate: slope.
Orangeburg----------	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.
EsB:*					
Esto----------	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight----------	Slight.
Susquehanna----------	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Slight----------	Slight.
EsC:*					
Esto----------	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight----------	Slight.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
EsC:* Susquehanna	Severe: percs slowly.	Severe: percs slowly.	Severe: slope, percs slowly.	Slight	Slight.
FeA Faceville	Slight	Slight	Slight	Slight	Slight.
FeB Faceville	Slight	Slight	Moderate: slope.	Slight	Slight.
FsC2 Faceville	Slight	Slight	Severe: slope.	Slight	Slight.
GoA Goldsboro	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Slight	Slight.
Gr Grady	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
GsA Greenville	Slight	Slight	Slight	Slight	Slight.
GsB Greenville	Slight	Slight	Moderate: slope.	Slight	Slight.
HvA Hornsville	Severe: flooding.	Moderate: percs slowly.	Moderate: percs slowly.	Slight	Slight.
KeC Kershaw	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty.
LkB Lakeland	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
LmB Lucy	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
LmC Lucy	Moderate: too sandy.	Moderate: too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty.
MaA Maxton	Slight	Slight	Slight	Slight	Slight.
Mm:* Meggett	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Muckalee	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
NoA Norfolk	Slight	Slight	Slight	Slight	Slight.
NoB Norfolk	Slight	Slight	Moderate: slope.	Slight	Slight.
OeA Orangeburg	Slight	Slight	Slight	Slight	Slight.
OeB Orangeburg	Slight	Slight	Moderate: slope.	Slight	Slight.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
OeC---- Orangeburg	Slight----	Slight----	Severe: slope.	Slight----	Slight.
Op:*					
Osier----	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
Pelham----	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Pe---- Pelham	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
ReA---- Red Bay	Slight----	Slight----	Slight----	Slight----	Slight.
ReB---- Red Bay	Slight----	Slight----	Moderate: slope.	Slight----	Slight.
SuA---- Suffolk	Slight----	Slight----	Slight----	Slight----	Slight.
TfA---- Tifton	Slight----	Slight----	Moderate: small stones.	Slight----	Slight.
TfB---- Tifton	Slight----	Slight----	Moderate: slope, small stones.	Slight----	Slight.
TsC2---- Tifton	Slight----	Slight----	Severe: slope.	Slight----	Slight.
TwB---- Troup	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
TwC---- Troup	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty.
WaB---- Wagram	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
WaC---- Wagram	Moderate: too sandy.	Moderate: too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty.
WeA---- Wahee	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AdA---------- Albany	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair	Poor.
BgA---------- Bigbee	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
BoA---------- Bonneau	Fair	Good	Good	Fair	Fair	Poor	Poor	Good	Fair	Poor.
CaB2---------- Carnegie	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
CaC2---------- Carnegie	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
CnA---------- Clarendon	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Co---------- Coxville	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
DpA---------- Duplin	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
EnB:*										
Esto----------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Norfolk----------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
EnC:*										
Esto----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Norfolk----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
EoD:*										
Esto----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Orangeburg--------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
EsB:*										
Esto----------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Susquehanna-------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
EsC:*										
Esto----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Susquehanna-------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
FeA---------- Faceville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 10.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
FeB--Faceville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
FsC2--Faceville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
GoA--Goldsboro	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Gr--Grady	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
GsA, GsB--Greenville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
HvA--Hornsville	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
KeC--Kershaw	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
LkB--Lakeland	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
LmB, LmC--Lucy	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
MaA--Maxton	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Mm:*										
Meggett	Poor	Fair	Fair	Fair	Good	Good	Good	Fair	Good	Good.
Muckalee	Poor	Poor	Fair	Fair	Fair	Good	Fair	Poor	Fair	Fair.
NoA, NoB--Norfolk	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
OeA, OeB--Orangeburg	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
OeC--Orangeburg	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Op*:										
Osier	Very poor.	Poor	Fair	Fair	Fair	Fair	Good	Poor	Fair	Fair.
Pelham	Poor	Poor	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair.
Pe--Pelham	Poor	Poor	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair.
ReA--Red Bay	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ReB--Red Bay	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
SuA--Suffolk	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
TfA--Tifton	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
TfB--Tifton	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 10.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
TsC2---------- Tifton	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
TwB, TwC---------- Troup	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
WaB---------- Wagram	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
WaC---------- Wagram	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
WeA---------- Wahee	Fair	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition and does not eliminate the need for onsite investigation]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AdA---------- Albany	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Severe: droughty.
BgA---------- Bigbee	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: droughty, flooding.
BoA---------- Bonneau	Moderate: wetness.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty.
CaB2--------- Carnegie	Slight---------	Slight---------	Slight---------	Slight---------	Slight---------	Slight.
CaC2--------- Carnegie	Slight---------	Slight---------	Slight---------	Moderate: slope.	Slight---------	Slight.
CnA---------- Clarendon	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
Co---------- Coxville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
DpA---------- Duplin	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Moderate: low strength, shrink-swell.	Slight.
EnB:*						
Esto----------	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: low strength, shrink-swell.	Slight.
Norfolk----------	Slight---------	Slight---------	Slight---------	Slight---------	Slight---------	Slight.
EnC:*						
Esto----------	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: low strength, shrink-swell.	Slight.
Norfolk----------	Slight---------	Slight---------	Slight---------	Moderate: slope.	Slight---------	Slight.
EoD:*						
Esto----------	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: low strength, slope, shrink-swell.	Moderate: slope.
Orangeburg-------	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
EsB:*						
Esto----------	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: low strength, shrink-swell.	Slight.
Susquehanna------	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Slight.
EsC:*						
Esto----------	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: low strength, shrink-swell.	Slight.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
EsC:*						
Susquehanna	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Slight.
FeA, FeB	Moderate: too clayey.	Slight	Slight	Slight	Moderate: low strength.	Slight.
Faceville						
FsC2	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
Faceville						
GoA	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Slight.
Goldsboro						
Gr	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: low strength, ponding.	Severe: ponding.
Grady						
GsA, GsB	Moderate: too clayey.	Slight	Slight	Slight	Moderate: low strength.	Slight.
Greenville						
HvA	Moderate: too clayey, wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: low strength.	Slight.
Hornsville						
KeC	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Severe: droughty.
Kershaw						
LkB	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty, too sandy.
Lakeland						
LmB	Moderate: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
Lucy						
LmC	Moderate: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
Lucy						
MaA	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Slight.
Maxton						
Mm:*						
Meggett	Severe: wetness, too clayey.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, wetness, flooding.	Severe: wetness, flooding.
Muckalee	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
NoA, NoB	Slight	Slight	Slight	Slight	Slight	Slight.
Norfolk						
OeA, OeB	Slight	Slight	Slight	Slight	Slight	Slight.
Orangeburg						
OeC	Slight	Slight	Slight	Moderate: slope.	Slight	Slight.
Orangeburg						
Op:*						
Osier	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, droughty.
Pelham	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Pe---------- Pelham	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness.
ReA, ReB---------- Red Bay	Slight---------	Slight---------	Slight---------	Slight---------	Slight---------	Slight.
SuA---------- Suffolk	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Slight.
TfA, TfB---------- Tifton	Moderate: wetness.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Slight.
TsC2---------- Tifton	Moderate: wetness.	Slight---------	Moderate: wetness.	Moderate: slope.	Slight---------	Slight.
TwB---------- Troup	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Severe: droughty.
TwC---------- Troup	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Moderate: droughty, too sandy.
WaB---------- Wagram	Moderate: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: droughty.
WaC---------- Wagram	Moderate: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Moderate: droughty.
WeA---------- Wahee	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition and does not eliminate the need for onsite investigation]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AdA---------- Albany	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy, wetness.
BgA---------- Bigbee	Severe: flooding, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
BoA---------- Bonneau	Moderate: wetness.	Moderate: seepage.	Severe: wetness.	Moderate: wetness.	Good.
CaB2, CaC2---------- Carnegie	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight----------	Fair: too clayey.
CnA---------- Clarendon	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
Co---------- Coxville	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: wetness.
DpA---------- Duplin	Severe: wetness, percs slowly.	Slight----------	Severe: wetness.	Severe: wetness.	Fair: too clayey, hard to pack, wetness.
EnB:* EnC:* Esto----------	Severe: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight----------	Fair: too clayey, hard to pack.
Norfolk----------	Slight----------	Moderate: seepage.	Slight----------	Slight----------	Good.
EoD:* Esto----------	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
Orangeburg---------	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
EsB:* EsC:* Esto----------	Severe: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight----------	Fair: too clayey, hard to pack.
Susquehanna--------	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight----------	Poor: too clayey, hard to pack.
FeA---------- Faceville	Slight----------	Moderate: seepage.	Moderate: too clayey.	Slight----------	Fair: too clayey.
FeB, FsC2---------- Faceville	Slight----------	Moderate: seepage, slope.	Moderate: too clayey.	Slight----------	Fair: too clayey.
GoA---------- Goldsboro	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Gr Grady	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding, too clayey.	Severe: ponding.	Poor: ponding.
GsA Greenville	Slight	Moderate: seepage.	Moderate: too clayey.	Slight	Fair: too clayey.
GsB Greenville	Slight	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
HvA Hornsville	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, hard to pack, wetness.
KeC Kershaw	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy, seepage.	Severe: seepage.	Poor: seepage, too sandy.
LkB Lakeland	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
LmB, LmC Lucy	Slight	Moderate: seepage.	Slight	Slight	Good.
MaA Maxton	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Fair: too sandy.
Mm:*					
Meggett	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
Muckalee	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
NoA, NoB Norfolk	Slight	Moderate: seepage.	Slight	Slight	Good.
OeA Orangeburg	Slight	Moderate: seepage.	Slight	Slight	Good.
OeB, OeC Orangeburg	Slight	Moderate: seepage, slope.	Slight	Slight	Good.
Op:*					
Osier	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
Pelham	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, seepage, wetness.	Poor: wetness.
Pe Pelham	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, seepage, wetness.	Poor: wetness.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
ReA Red Bay	Slight	Moderate: seepage.	Slight	Good	Good.
ReB Red Bay	Slight	Moderate: seepage, slope.	Slight	Good	Good.
SuA Suffolk	Slight	Severe: seepage.	Severe: seepage.	Slight	Good.
TfA Tifton	Moderate: percs slowly, wetness.	Moderate: seepage.	Slight	Slight	Fair: small stones.
TfB, TsC2 Tifton	Moderate: percs slowly, wetness.	Moderate: slope, seepage.	Slight	Slight	Fair: small stones.
TwB, TwC Troup	Slight	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy.
WaB, WaC Wagram	Slight	Moderate: seepage.	Slight	Slight	Good.
WeA Wahee	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," "probable," and "improbable." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition and does not eliminate the need for onsite investigation]

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
AdA Albany	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
BgA Bigbee	Good	Probable	Improbable: too sandy.	Poor: too sandy.
BoA Bonneau	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
CaB2, CaC2 Carnegie	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
CnA Clarendon	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Co Coxville	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
DpA Duplin	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
EnB,* EnC:* Esto	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Norfolk	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
EoD:* Esto	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Orangeburg	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
EsB,* EsC:* Esto	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Susquehanna	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
FeA, FeB, FsC2 Faceville	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
GoA Goldsboro	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Gr Grady	Poor: ponding.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
GsA, GsB Greenville	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
HvA Honsville	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
KeC Kershaw	Good	Probable	Improbable: too sandy.	Poor: too sandy.

See footnote at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
LkB---------- Lakeland	Good----------	Probable----------	Improbable: too sandy.	Poor: too sandy.
LmB, LmC---------- Lucy	Good----------	Improbable: excess fines, thin layer.	Improbable: excess fines.	Fair: too sandy.
MaA---------- Maxton	Good----------	Probable----------	Improbable: too sandy.	Fair: too clayey.
Mm:*				
Meggett----------	Poor: wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Muckalee----------	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
NoA, NoB---------- Norfolk	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
OeA, OeB, OeC--------- Orangeburg	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Op:*				
Osier----------	Poor: wetness.	Probable----------	Improbable: too sandy.	Poor: too sandy, wetness.
Pelham----------	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Pe---------- Pelham	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
ReA, ReB---------- Red Bay	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
SuA---------- Suffolk	Good----------	Probable----------	Improbable: too sandy.	Fair: too clayey.
TfA, TfB, TsC2-------- Tifton	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
TwB, TwC---------- Troup	Good----------	Probable----------	Improbable: too sandy.	Poor: too sandy.
WaB, WaC---------- Wagram	Good----------	Improbable: excess fines, thin layer.	Improbable: excess fines.	Fair: too sandy.
WeA---------- Wahee	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, too clayey.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition and does not eliminate the need for onsite investigation]

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
AdA---------- Albany	Severe: seepage.	Severe: seepage, piping, wetness.	Cutbanks cave	Wetness, droughty.	Wetness, too sandy.	Wetness, droughty.
BgA---------- Bigbee	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, flooding.	Too sandy------	Droughty.
BoA---------- Bonneau	Moderate: seepage.	Slight---------	Deep to water	Droughty-------	Too sandy -----	Droughty.
CaB2, CaC2-------- Carnegie	Slight---------	Slight---------	Deep to water	Slope----------	Favorable------	Favorable.
CnA---------- Clarendon	Moderate: seepage.	Moderate: wetness.	Favorable------	Wetness--------	Wetness--------	Favorable.
Co---------- Coxville	Slight---------	Severe: wetness.	Favorable------	Wetness--------	Wetness--------	Wetness.
DpA---------- Duplin	Slight---------	Moderate: piping, hard to pack, wetness.	Favorable------	Wetness--------	Wetness--------	Favorable.
EnB,* EnC:* Esto----------	Slight---------	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly---	Percs slowly.
Norfolk----------	Moderate: seepage.	Slight---------	Deep to water	Slope----------	Favorable------	Favorable.
EoD:* Esto----------	Slight---------	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
Orangeburg-------	Moderate: seepage.	Slight---------	Deep to water	Slope----------	Slope----------	Slope.
EsB,* EsC:* Esto----------	Slight---------	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly---	Percs slowly.
Susquehanna------	Slight---------	Severe: hard to pack.	Percs slowly, slope.	Percs slowly, slope.	Percs slowly---	Percs slowly.
FeA---------- Faceville	Moderate: seepage.	Slight---------	Deep to water	Favorable------	Favorable------	Favorable.
FeB, FsC2--------- Faceville	Moderate: seepage.	Slight---------	Deep to water	Slope----------	Favorable------	Favorable.
GoA---------- Goldsboro	Moderate: seepage.	Moderate: wetness.	Favorable------	Wetness--------	Wetness--------	Favorable.
Gr---------- Grady	Slight---------	Severe: ponding.	Ponding, percs slowly.	Ponding, percs slowly.	Ponding, percs slowly.	Wetness, percs slowly.
GsA---------- Greenville	Moderate: seepage.	Slight---------	Deep to water	Favorable------	Favorable------	Favorable.

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
GsB---------- Greenville	Moderate: seepage,	Slight---------	Deep to water	Slope----------	Favorable------	Favorable.
HvA---------- Hornsville	Moderate: seepage.	Moderate: hard to pack, wetness.	Favorable------	Wetness--------	Wetness--------	Favorable.
KeC---------- Kershaw	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, slope.	Too sandy------	Droughty.
LkB---------- Lakeland	Severe: seepage.	Severe: seepage.	Deep to water	Droughty-------	Too sandy------	Droughty.
LmB---------- Lucy	Moderate: seepage.	Slight---------	Deep to water	Droughty-------	Too sandy------	Droughty.
LmC---------- Lucy	Moderate: seepage.	Slight---------	Deep to water	Droughty, slope.	Too sandy------	Droughty.
MaA---------- Maxton	Severe: seepage.	Severe--------- seepage.	Deep to water	Favorable------	Too sandy------	Favorable.
Mm:* Meggett----------	Moderate: seepage.	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
Muckalee---------	Moderate: seepage.	Severe: piping, wetness.	Flooding, cutbanks cave.	Wetness, droughty, flooding.	Wetness, too sandy.	Wetness, droughty.
NoA---------- Norfolk	Moderate: seepage.	Slight---------	Deep to water	Favorable------	Favorable------	Favorable.
NoB---------- Norfolk	Moderate: seepage.	Slight---------	Deep to water	Slope----------	Favorable------	Favorable.
OeA---------- Orangeburg	Moderate: seepage.	Slight---------	Deep to water	Favorable------	Favorable------	Favorable.
OeB, OeC---------- Orangeburg	Moderate: seepage.	Slight---------	Deep to water	Slope----------	Favorable------	Favorable.
Op:* Osier----------	Severe: seepage.	Severe: seepage, piping, wetness.	Flooding, cutbanks cave.	Wetness, droughty, flooding.	Wetness, too sandy.	Wetness, droughty.
Pelham----------	Severe: seepage.	Severe: piping, wetness.	Flooding-------	Wetness, droughty, flooding.	Wetness--------	Wetness, droughty.
Pe---------- Pelham	Severe: seepage.	Severe: piping, wetness.	Flooding-------	Wetness, droughty, flooding.	Wetness--------	Wetness, droughty.
ReA---------- Red Bay	Moderate: seepage.	Slight---------	Deep to water	Favorable------	Favorable------	Favorable.
ReB---------- Red Bay	Moderate: seepage, slope.	Slight---------	Deep to water	Slope----------	Favorable------	Favorable.

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
SuA---------- Suffolk	Moderate: seepage.	Slight----------	Deep to water	Favorable------	Favorable------	Favorable.
TfA---------- Tifton	Moderate: seepage.	Slight----------	Deep to water	Favorable------	Favorable------	Favorable.
TfB, TsC2---------- Tifton	Moderate: seepage.	Slight----------	Deep to water	Slope----------	Favorable------	Favorable.
TwB---------- Troup	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty-------	Too sandy------	Droughty.
TwC---------- Troup	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, slope.	Too sandy------	Droughty.
WaB---------- Wagram	Moderate: seepage.	Slight----------	Deep to water	Droughty-------	Too sandy------	Droughty.
WaC---------- Wagram	Moderate: seepage.	Slight----------	Deep to water	Droughty, slope.	Too sandy------	Droughty.
WeA---------- Wahee	Slight----------	Severe: wetness.	Percs slowly, floods.	Wetness, percs slowly, floods.	Wetness, percs slowly.	Wetness, percs slowly.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
AdA---------- Albany	0-53	Sand----------	SM	A-2	0	100	100	75-90	12-23	---	NP
	53-64	Sandy loam--------	SM	A-2	0	100	100	75-92	22-30	---	NP
	64-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	97-100	95-100	70-100	25-50	<40	NP-17
BgA---------- Bigbee	0-8	Sand----------	SM, SP-SM	A-2-4, A-3	0	100	95-100	80-95	5-30	---	NP
	8-96	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	85-100	85-100	80-100	5-20	---	NP
BoA---------- Bonneau	0-34	Loamy sand--------	SM	A-2	0	100	100	50-80	15-35	---	NP
	34-42	Sandy loam, sandy clay loam, fine sandy loam.	SC, SM-SC	A-2, A-6, A-4	0	100	100	60-90	30-50	21-37	4-14
	42-64	Sandy loam, sandy clay loam, sandy clay.	CL, SC, SM-SC, CL-ML	A-4, A-6, A-2	0	100	100	60-95	34-60	20-40	4-18
CaB2, CaC2------- Carnegie	0-5	Sandy loam--------	SM, SM-SC	A-2	0	95-100	90-95	51-75	13-30	<25	NP-5
	5-18	Sandy clay, clay	CL	A-6, A-7	0	95-100	90-99	90-95	65-70	36-49	13-25
	18-28	Sandy clay, clay	CL	A-6, A-7	0	92-100	90-98	89-98	63-76	36-49	13-25
	28-62	Sandy clay, clay	CL	A-7, A-6	---	99-100	98-100	90-98	68-79	36-49	13-25
CnA---------- Clarendon	0-17	Loamy sand--------	SM, SP-SM	A-2	0	98-100	92-100	65-90	10-30	<20	NP-3
	17-35	Sandy clay loam	SC, CL, SM-SC, CL-ML	A-4, A-6	0	98-100	92-100	75-95	36-55	20-40	5-15
	35-72	Sandy clay loam, sandy loam, sandy clay.	SC, CL, SM-SC, CL-ML	A-2, A-4, A-6	0	99-100	96-100	80-95	25-55	<40	NP-15
Co---------- Coxville	0-8	Fine sandy loam	SM, ML, CL-ML, CL	A-4, A-6, A-7	0	100	100	85-97	46-75	20-46	3-15
	8-62	Clay loam, sandy clay, clay.	CL, CH	A-6, A-7	0	100	100	85-98	50-85	30-55	12-35
DpA---------- Duplin	0-12	Fine sandy loam	SM, SM-SC	A-2, A-4	0	100	100	67-98	20-49	<26	NP-7
	12-62	Sandy clay, clay loam, clay.	CL, CH, SC	A-6, A-7	0	100	98-100	80-100	45-75	24-54	13-35
EnB,* EnC:* Esto----------	0-5	Sandy loam--------	SM, SM-SC, ML, CL-ML	A-4, A-2	0	95-100	95-100	70-96	34-55	<25	NP-4
	5-13	Clay loam, sandy clay, sandy clay loam.	CL, SC	A-6, A-7	0	95-100	95-100	90-100	45-90	35-50	12-25
	13-65	Clay loam, clay, sandy clay.	CL, CH	A-6, A-7	0	95-100	95-100	90-100	51-98	35-80	18-52
Norfolk----------	0-10	Loamy sand--------	SM	A-2	0	95-100	92-100	50-91	13-30	<20	NP
	10-14	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-55	20-38	4-15
	14-72	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-4, A-6, A-7-6	0	100	98-100	65-98	36-72	20-45	4-22
EoD:* Esto----------	0-5	Sandy loam--------	SM, SM-SC, ML, CL-ML	A-4, A-2	0	95-100	95-100	70-96	34-55	<25	NP-4
	5-13	Clay loam, sandy clay, sandy clay loam.	CL, SC	A-6, A-7	0	95-100	95-100	90-100	45-90	35-50	12-25
	13-65	Clay loam, clay, sandy clay.	CL, CH	A-6, A-7	0	95-100	95-100	90-100	51-98	35-80	18-52

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
EoD:*											
Orangeburg	0-6	Loamy sand	SM	A-2	0	98-100	95-100	60-87	14-28	---	NP
	6-10	Sandy loam	SM	A-2	0	98-100	95-100	70-96	25-35	<30	NP-4
	10-65	Sandy clay loam, sandy loam.	SC, CL, SM, SM-SC	A-6, A-4	0	98-100	95-100	71-96	38-58	22-40	3-19
EsB,* EsC:*											
Esto	0-5	Sandy loam	SM, SM-SC, ML, CL-ML	A-4, A-2	0	95-100	95-100	70-96	34-55	<25	NP-4
	5-13	Clay loam, sandy clay, sandy clay loam.	CL, SC	A-6, A-7	0	95-100	95-100	90-100	45-90	35-50	12-25
	13-65	Clay loam, clay, sandy clay.	CL, CH	A-6, A-7	0	95-100	95-100	90-100	51-98	35-80	18-52
Susquehanna	0-4	Sandy loam	ML, SM	A-4	0	100	100	65-90	40-55	---	NP
	4-71	Clay, silty clay loam, silty clay.	CH	A-7	0	100	100	88-100	80-98	50-90	28-56
FeA, FeB	0-6	Sandy loam	SM, SM-SC	A-2, A-4	0	90-100	85-100	72-97	17-38	<25	NP-7
Faceville	6-12	Sandy clay loam, sandy clay.	SC, ML, CL, SM	A-4, A-6	0	98-100	90-100	85-98	46-66	<35	NP-13
	12-65	Sandy clay, clay, clay loam.	CL, SC, CH	A-6, A-7	0	98-100	95-100	75-99	45-72	25-52	11-25
FsC2	0-6	Sandy clay loam	SM, CL-ML, ML, SM-SC	A-4	0	90-100	90-100	63-97	40-58	<25	NP-7
Faceville	6-65	Sandy clay, clay, clay loam.	CL, SC, CH	A-6, A-7	0	98-100	95-100	75-99	45-72	25-52	11-25
GoA	0-8	Loamy sand	SM, SM-SC, SC	A-2, A-4, A-6	0	90-100	75-100	50-95	15-45	<25	NP-14
Goldsboro	8-50	Sandy clay loam, sandy loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0	98-100	95-100	60-95	25-55	16-37	4-18
	50-64	Sandy clay loam, clay loam, sandy clay.	SC, CL, CL-ML, CH	A-4, A-6, A-7-5	0	95-100	90-100	65-95	36-70	25-55	6-32
Gr	0-5	Fine sandy loam	SM, ML, CL-ML, SM-SC	A-4, A-6	0	100	99-100	85-100	40-75	<30	NP-15
Grady	5-12	Clay loam, sandy clay loam, loam.	CL	A-6	0	100	100	90-100	51-80	25-40	11-20
	12-72	Clay, sandy clay	CL, ML, CH	A-6, A-7	0	100	100	90-100	55-90	30-51	12-25
GsA, GsB	0-9	Sandy loam	SM, SC, SM-SC, CL-ML	A-2, A-4	0	95-100	90-100	65-85	30-55	<25	NP-10
Greenville	9-72	Sandy clay loam, sandy clay, clay.	CL, SC	A-6, A-7	0	98-100	95-100	80-95	40-80	30-47	11-25
HvA	0-6	Fine sandy loam	SM	A-2-4, A-4	0	100	100	60-95	30-50	<30	NP-7
Hornsville	6-43	Sandy clay, clay loam, clay.	SC, CL, CH	A-6, A-7	0	100	100	70-98	45-70	38-56	15-25
	43-62	Sandy clay loam, sandy loam, fine sandy loam.	SM, SM-SC, SC	A-2-4, A-2-6, A-4, A-6	0	100	100	60-100	18-50	<30	NP-12
KeC	0-80	Sand	SP, SP-SM, SW	A-2, A-3	0	98-100	98-100	50-80	1-7	---	NP
Kershaw											

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
LkB---------- Lakeland	0-82	Sand----------	SP-SM	A-3, A-2-4	0	90-100	90-100	60-100	5-12	---	NP
LmB, LmC--------- Lucy	0-29	Loamy sand-------	SM, SP-SM	A-2	0	98-100	95-100	50-87	10-30	---	NP
	29-35	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	97-100	95-100	55-95	15-50	<30	NP-15
	35-72	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, SM	A-2, A-6, A-4	0	100	95-100	60-95	20-50	20-40	3-20
MaA---------- Maxton	0-7	Loamy sand-------	SM, SP-SM	A-2	0-3	90-100	90-100	70-95	10-25	---	NP
	7-28	Sandy clay loam, sandy loam.	SC, SM-SC	A-4, A-6, A-2	0-3	90-100	85-100	75-90	30-49	20-35	4-15
	28-72	Stratified loamy sand to sand.	SM, SP-SM, SP	A-2, A-3	0-3	90-100	75-100	50-90	4-25	---	NP
Mm:*											
Meggett---------	0-8	Loam----------	ML, CL-ML	A-4	0	100	90-100	85-100	51-75	<35	NP-10
	8-62	Clay, sandy clay, clay loam.	CH, MH, CL	A-6, A-7	0	100	90-100	85-100	51-90	30-60	20-30
Muckalee--------	0-5	Loamy sand-------	ML, SC, SM, SM-SC	A-2, A-4	0	95-100	90-100	50-95	30-60	<30	NP-10
	5-65	Sandy loam, loamy sand.	SM	A-2, A-4	0	95-100	80-100	60-90	20-40	<20	NP-4
NoA, NoB--------- Norfolk	0-10	Loamy sand-------	SM	A-2	0	95-100	92-100	50-91	13-30	<20	NP
	10-48	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-55	20-38	4-15
	48-72	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-4, A-6, A-7-6	0	100	98-100	65-98	36-72	20-45	4-22
OeA, OeB, OeC---- Orangeburg	0-13	Loamy sand-------	SM	A-2	0	98-100	95-100	60-87	14-28	---	NP
	13-16	Sandy loam-------	SM	A-2	0	98-100	95-100	70-96	25-35	<30	NP-4
	16-72	Sandy clay loam, sandy loam.	SC, CL, SM, SM-SC	A-6, A-4	0	98-100	95-100	71-96	38-58	22-40	3-19
Op:*											
Osier----------	0-15	Sand----------	SP-SM	A-2, A-3	0	100	98-100	60-85	5-12	---	NP
	15-72	Coarse sand, sand, fine sand.	SP, SP-SM	A-1, A-3	0	100	90-100	40-60	2-10	---	NP
Pelham----------	0-22	Loamy sand-------	SM	A-2	0	100	95-100	75-90	15-30	---	NP
	22-72	Sandy clay loam, sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	65-90	30-50	15-30	2-12
Pe---------- Pelham	0-22	Loamy sand-------	SM	A-2	0	100	95-100	75-90	15-30	---	NP
	22-72	Sandy clay loam, sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	65-90	30-50	<30	2-12
ReA, ReB--------- Red Bay	0-10	Loamy sand-------	SM	A-2	0	100	90-100	51-75	15-30	---	NP
	10-16	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4	0	100	95-100	60-85	15-50	<35	NP-10
	16-72	Sandy clay loam	SM-SC, SC	A-2, A-4, A-6	0	100	95-100	70-90	24-50	18-40	4-16
SuA---------- Suffolk	0-14	Loamy fine sand	SM, SM-SC	A-1, A-2, A-4	0	95-100	90-100	40-85	15-40	<18	NP-6
	14-46	Sandy clay loam, clay loam, sandy loam.	SC, CL	A-2, A-6	0	95-100	90-100	50-95	25-75	20-40	10-25
	46-72	Loamy fine sand, fine sandy loam, gravelly sand.	SP, SM, SM-SC	A-1, A-2, A-3, A-4	0	75-100	60-100	30-80	3-50	<18	NP-7

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
TfA, TfB--------- Tifton	0-10	Loamy sand--------	SM, SP-SM	A-2	0	70-96	62-94	53-85	11-27	---	NP
	10-13	Sandy loam, sandy clay loam.	SM, SM-SC	A-2	0	70-95	56-89	55-89	20-35	<25	NP-7
	13-36	Sandy clay loam	SC, CL	A-2, A-6	0	70-98	65-94	60-89	22-53	22-40	10-22
	36-62	Sandy clay loam, sandy clay.	SC, CL	A-2, A-6, A-7, A-4	0	87-100	80-99	50-94	34-55	24-45	8-23
TsC2------------- Tifton	0-6	Sandy loam--------	SM, SM-SC	A-2	0	70-95	60-89	55-89	15-30	<20	NP-6
	6-28	Sandy clay loam	SC, CL	A-2, A-6	0	70-98	65-94	60-89	22-53	22-40	10-22
	28-60	Sandy clay loam, sandy clay.	SC, CL	A-2, A-6, A-7, A-4	0	87-100	80-99	50-94	34-55	24-45	8-23
TwB, TwC--------- Troup	0-53	Sand--------------	SM, SP-SM	A-2	0	100	100	50-75	10-30	---	NP
	53-82	Sandy clay loam, sandy loam.	SC, SM-SC, CL-ML, CL	A-4, A-2	0	95-100	95-100	70-90	24-55	19-30	4-10
WaB, WaC--------- Wagram	0-28	Loamy sand--------	SM, SP-SM	A-2, A-3	0	100	98-100	50-85	8-35	---	NP
	28-82	Sandy clay loam, sandy loam.	SC	A-2, A-4, A-6, A-7	0	100	98-100	60-95	31-49	21-41	8-25
WeA-------------- Wahee	0-10	Fine sandy loam	SM, SM-SC	A-2, A-4	0	100	95-100	50-98	30-50	<28	NP-7
	10-50	Clay, clay loam, silty clay.	CL, CH	A-6, A-7	0	100	100	85-100	51-90	38-70	18-42
	50-65	Variable---------	---	---	---	---	---	---	---	---	---

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm³	In/hr	In/in	pH				Pct
AdA	0-53	5-10	---	- 6.0-20	0.02-0.04	3.6-6.5	Low	0.10	5	1-2
Albany	53-64	10-20	---	2.0-6.0	0.08-0.10	4.5-6.0	Low	0.20		
	64-80	15-35	---	0.6-2.0	0.10-0.16	4.5-6.0	Low	0.24		
BgA	0-8	4-10	1.40-1.50	6.0-20	0.05-0.10	4.5-6.0	Low	0.17	5	.5-2
Bigbee	8-96	<5	1.40-1.50	6.0-20	0.05-0.08	4.5-6.0	Low	0.17		
BoA	0-34	5-15	1.30-1.70	6.0-20	0.05-0.11	4.5-6.0	Low	0.15	5	.5-2
Bonneau	34-42	18-35	1.40-1.60	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.20		
	42-64	15-40	1.40-1.60	0.6-2.0	0.10-0.16	4.5-5.5	Low	0.20		
CaB2, CaC2	0-5	3-8	---	2.0-6.0	0.05-0.08	4.5-6.0	Low	0.28	3	1-2
Carnegie	5-18	36-43	---	0.2-0.6	0.10-0.14	4.5-5.5	Low	0.32		
	18-28	36-51	---	0.2-0.6	0.10-0.12	4.5-5.5	Low	0.28		
	28-62	36-55	---	0.2-0.6	0.10-0.12	4.5-5.5	Low	0.28		
CnA	0-17	2-10	1.40-1.60	2.0-6.0	0.08-0.12	4.5-6.5	Low	0.15	5	.5-3
Clarendon	17-35	18-35	1.40-1.60	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.20		
	35-72	15-40	1.40-1.70	0.2-0.6	0.08-0.12	4.5-5.5	Low	0.15		
Co	0-8	5-27	1.45-1.65	0.6-2.0	0.12-0.17	3.6-5.5	Low	0.24	5	2-4
Coxville	8-62	35-60	1.25-1.45	0.2-0.6	0.14-0.18	3.6-5.5	Moderate	0.32		
DpA	0-12	4-18	1.45-1.65	2.0-6.0	0.10-0.15	5.1-7.3	Low	0.24	5	.5-2
Duplin	12-62	35-60	1.25-1.40	0.2-0.6	0.13-0.18	4.5-5.5	Moderate	0.28		
EnB,* EnC:*										
Esto	0-5	8-20	---	2.0-6.0	0.11-0.15	4.5-5.5	Low	0.28	3	<1
	5-13	26-45	---	0.6-2.0	0.12-0.17	4.5-5.5	Moderate	0.32		
	13-65	35-60	---	0.06-0.2	0.12-0.18	4.5-5.5	Moderate	0.32		
Norfolk	0-10	2-8	1.55-1.75	6.0-20	0.06-0.11	4.5-6.0	Low	0.20	5	.5-2
	10-14	18-35	1.35-1.45	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.24		
	14-72	20-40	1.30-1.40	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.24		
EoD:*										
Esto	0-5	8-20	---	2.0-6.0	0.11-0.15	4.5-5.5	Low	0.28	3	<1
	5-13	26-45	---	0.6-2.0	0.12-0.17	4.5-5.5	Moderate	0.32		
	13-65	35-60	---	0.06-0.2	0.12-0.18	4.5-5.5	Moderate	0.32		
Orangeburg	0-6	4-10	---	2.0-6.0	0.06-0.09	4.5-6.0	Low	0.10	5	.5-1
	6-10	7-18	---	2.0-6.0	0.09-0.12	4.5-6.0	Low	0.20		
	10-65	18-35	---	0.6-2.0	0.11-0.14	4.5-5.5	Low	0.24		
EsB,* EsC:*										
Esto	0-5	8-20	---	2.0-6.0	0.11-0.15	4.5-5.5	Low	0.28	3	<1
	5-13	26-45	---	0.6-2.0	0.12-0.17	4.5-5.5	Moderate	0.32		
	13-65	35-60	---	0.06-0.2	0.12-0.18	4.5-5.5	Moderate	0.32		
Susquehanna	0-4	2-12	1.50-1.55	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.28	5	.5-2
	4-71	35-60	1.25-1.50	<0.06	0.15-0.20	4.5-5.5	High	0.32		
FeA, FeB	0-6	5-20	---	6.0-20	0.06-0.09	4.5-5.5	Low	0.28	5	.5-2
Faceville	6-12	20-36	---	0.6-2.0	0.12-0.15	4.5-5.5	Low	0.37		
	12-65	35-55	---	0.6-2.0	0.12-0.18	4.5-6.0	Low	0.37		
FsC2	0-6	20-28	---	0.6-2.0	0.10-0.13	4.5-5.5	Low	0.32	5	.5-1
Faceville	6-65	35-55	---	0.6-2.0	0.12-0.18	4.5-6.0	Low	0.37		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm³	In/hr	In/in	pH				Pct
GoA----------	0-8	5-15	1.40-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low----------	0.20	5	.5-2
Goldsboro	8-50	18-30	1.30-1.50	0.6-2.0	0.11-0.15	4.5-5.5	Low----------	0.24		
	50-64	20-45	1.30-1.40	0.6-2.0	0.11-0.15	4.5-5.5	Low----------	0.24		
Gr----------	0-5	15-30	---	0.6-2.0	0.10-0.18	3.6-5.5	Low----------	0.24	5	---
Grady	5-12	20-35	---	0.2-0.6	0.10-0.15	3.6-5.5	Low----------	0.10		
	12-72	45-65	---	0.06-0.2	0.12-0.16	3.6-5.5	Moderate-----	0.10		
GsA, GsB---------	0-9	5-20	---	0.6-6.0	0.07-0.14	4.5-5.5	Low----------	0.24	5	.5-1
Greenville	9-72	35-55	---	0.6-2.0	0.14-0.18	4.5-5.5	Low----------	0.17		
HvA----------	0-6	6-15	1.44-1.68	6.0-20	0.08-0.12	4.5-6.0	Low----------	0.20	5	1-4
Hornsville	6-43	35-60	1.58-1.63	0.2-0.6	0.12-0.16	4.5-5.5	Low----------	0.28		
	43-62	12-35	1.62-1.69	0.6-2.0	0.10-0.14	4.5-5.5	Low----------	0.32		
KeC----------	0-80	---	---	>20	0.02-0.05	4.5-6.0	Very low-----	0.10	5	---
Kershaw										
LkB----------	0-82	2-8	1.35-1.55	>20	0.05-0.08	4.5-6.0	Low----------	0.10	5	>1
Lakeland										
LmB, LmC---------	0-29	1-12	---	6.0-20	0.06-0.10	5.1-5.5	Low----------	0.15	5	.5-1
Lucy	29-35	10-30	---	2.0-6.0	0.10-0.12	4.5-5.5	Low----------	0.24		
	35-72	20-35	---	0.6-2.0	0.12-0.14	4.5-5.5	Low----------	0.28		
MaA----------	0-7	0-8	1.60-1.75	2.0-6.0	0.06-0.10	4.5-6.0	Low----------	0.15	4	.5-2
Maxton	7-28	18-35	1.40-1.60	0.6-2.0	0.13-0.18	4.5-5.5	Low----------	0.24		
	28-72	0-10	1.60-1.75	6.0-20	0.03-0.06	4.5-5.5	Low----------	0.10		
Mm:*										
Meggett---------	0-8	15-25	---	0.6-2.0	0.15-0.20	4.5-6.5	Low----------	0.28	5	2-8
	8-62	40-60	---	0.06-0.2	0.13-0.18	5.1-8.4	High---------	0.32		
Muckalee---------	0-5	10-25	---	0.6-2.0	0.09-0.15	5.1-6.5	Low----------	0.20	5	---
	5-65	5-20	---	0.6-2.0	0.08-0.12	5.6-7.3	Low----------	0.20		
NoA, NoB---------	0-10	2-8	1.55-1.75	6.0-20	0.06-0.11	4.5-6.0	Low----------	0.20	5	.5-2
Norfolk	10-48	18-35	1.35-1.45	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
	48-72	20-40	1.30-1.40	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
OeA, OeB, OeC----	0-13	4-10	---	2.0-6.0	0.06-0.09	4.5-6.0	Low----------	0.10	5	.5-1
Orangeburg	13-16	7-18	---	2.0-6.0	0.09-0.12	4.5-6.0	Low----------	0.20		
	16-72	18-35	---	0.6-2.0	0.11-0.14	4.5-5.5	Low----------	0.24		
Op:*										
Osier----------	0-15	5-10	---	6.0-20	0.03-0.10	4.5-6.0	Low----------	0.10	5	---
	15-72	2-5	---	>20	0.02-0.05	4.5-6.0	Low----------	0.05		
Pelham----------	0-22	5-10	---	6.0-20	0.05-0.08	4.5-5.5	Very low-----	0.10	5	1-2
	22-72	15-30	---	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.24		
Pe----------	0-22	5-10	---	6.0-20	0.05-0.08	4.5-5.5	Very low-----	0.10	5	1-2
Pelham	22-72	15-30	---	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.24		
ReA, ReB---------	0-10	4-12	---	>6.0	0.06-0.11	4.5-6.0	Low----------	0.10	5	<2
Red Bay	10-16	10-25	---	0.6-6.0	0.10-0.14	4.5-5.5	Low----------	0.15		
	16-72	18-25	---	0.6-2.0	0.12-0.17	4.5-5.5	Low----------	0.17		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm^3	In/hr	In/in	pH				Pct
SuA	0-14	4-10	1.40-1.50	2.0-20	0.06-0.10	3.6-5.5	Low	0.28	4	.5-1
Suffolk	14-46	10-33	1.40-1.50	0.6-2.0	0.12-0.20	3.6-5.5	Low	0.28		
	46-72	4-10	1.40-1.50	2.0-20	0.04-0.10	3.6-6.0	Low	0.17		
TfA, TfB	0-10	3-8	---	6.0-20	0.03-0.08	4.5-5.5	Low	0.10	4	<1
Tifton	10-13	13-22	---	6.0-20	0.08-0.12	4.5-5.5	Low	0.24		
	13-36	20-35	---	0.6-2.0	0.12-0.15	4.5-5.5	Low	0.24		
	36-62	25-40	---	0.2-0.6	0.10-0.13	4.5-5.5	Low	0.17		
TsC2	0-6	10-20	---	6.0-20	0.06-0.10	4.5-5.5	Low	0.17	4	1-2
Tifton	6-28	20-35	---	0.6-2.0	0.12-0.15	4.5-5.5	Low	0.24		
	28-60	25-40	---	0.2-0.6	0.10-0.13	4.5-5.5	Low	0.17		
TwB, TwC	0-53	1-10	---	6.0-20	0.03-0.10	4.5-5.5	Very low	0.15	5	<1
Troup	53-82	15-35	---	0.6-2.0	0.10-0.13	4.5-5.5	Low	0.20		
WaB, WaC	0-28	2-10	1.60-1.75	6.0-20	0.05-0.08	4.5-6.0	Low	0.15	5	.5-2
Wagram	28-82	10-35	1.35-1.60	0.6-2.0	0.12-0.16	4.5-6.0	Low	0.20		
WeA	0-10	5-20	1.30-1.60	0.6-2.0	0.10-0.15	4.5-6.0	Low	0.24	5	.5-5
Wahee	10-50	35-55	1.40-1.60	0.06-0.2	0.12-0.20	3.6-5.5	Moderate	0.28		
	50-65	---	---	0.2-0.6	0.12-0.20	3.6-5.5	Moderate	0.28		

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol > means more than. Absence of an entry indicates that the feature is not a concern]

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
AdA---------- Albany	C	None--------	---	---	1.0-2.5	Apparent	Dec-Mar	High-----	High.
BgA---------- Bigbee	A	Occasional	Brief-----	Jan-Mar	3.5-6.0	Apparent	Jan-Mar	Low------	Moderate.
BoA---------- Bonneau	A	None--------	---	---	3.5-5.0	Apparent	Dec-Mar	Low------	High.
CaB2, CaC2-------- Carnegie	C	None--------	---	---	>6.0	---	---	Low------	Moderate.
CnA---------- Clarendon	C	None--------	---	---	1.5-2.5	Apparent	Dec-Mar	Moderate	High.
Co---------- Coxville	D	None--------	---	---	0-1.5	Apparent	Nov-Apr	High-----	High.
DpA---------- Duplin	C	None--------	---	---	2.0-3.0	Apparent	Dec-Apr	High-----	High.
EnB,* EnC:*									
Esto----------	B	None--------	---	---	>6.0	---	---	High-----	High.
Norfolk----------	B	None--------	---	---	4.0-6.0	Apparent	Jan-Mar	Moderate	High.
EoD:*									
Esto----------	B	None--------	---	---	>6.0	---	---	High-----	High.
Orangeburg-------	B	None--------	---	---	>6.0	---	---	Moderate	Moderate.
EsB,* EsC:*									
Esto----------	B	None--------	---	---	>6.0	---	---	High-----	High.
Susquehanna------	D	None--------	---	---	>6.0	---	---	High-----	High.
FeA, FeB, FsC2---- Faceville	B	None--------	---	---	>6.0	---	---	Low------	Moderate.
GoA---------- Goldsboro	B	None--------	---	---	2.0-3.0	Apparent	Dec-Apr	Moderate	High.
Gr---------- Grady	D	None--------	---	---	+2-1.0	Apparent	Dec-Jun	High-----	High.
GsA, GsB---------- Greenville	B	None--------	---	---	>6.0	---	---	Moderate	High.
HvA---------- Hornsville	C	Rare--------	---	---	2.5-3.5	Apparent	Dec-Apr	High-----	High.
KeC---------- Kershaw	A	None--------	---	---	>6.0	---	---	Low------	High.
LkB---------- Lakeland	A	None--------	---	---	>6.0	---	---	Low------	Moderate.
LmB, LmC---------- Lucy	A	None--------	---	---	>6.0	---	---	Low------	High.
MaA---------- Maxton	B	None--------	---	---	>6.0	---	---	Moderate	Moderate.

See footnote at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
Mm:* Meggett	D	Frequent	Long	Dec-Apr	0-1.0	Apparent	Nov-Apr	High	Moderate.
Muckalee	D	Frequent	Brief	Nov-Apr	0.5-1.5	Apparent	Dec-Mar	High	Moderate.
NoA, NoB Norfolk	B	None	---	---	>6.0	Apparent	Jan-Mar	Moderate	High.
OeA, OeB, OeC Orangeburg	B	None	---	---	>6.0	---	---	Moderate	Moderate.
Op:* Osier	A/D	Occasional	Brief	Dec-Apr	0-1.0	Apparent	Nov-Mar	High	High.
Pelham	B/D	Occasional	Brief	Dec-Mar	0.5-1.5	Apparent	Jan-Apr	High	High.
Pe Pelham	B/D	Occasional	Brief	Dec-Mar	0.5-1.5	Apparent	Jan-Apr	High	High.
ReA, ReB Red Bay	B	None	---	---	>6.0	---	---	Moderate	Moderate.
SuA Suffolk	B	None	---	---	>6.0	---	---	Moderate	High.
TfA, TfB, TsC2 Tifton	B	None	---	---	3.5-6.0	Perched	Jan-Feb	Low	Moderate.
TwB, TwC Troup	A	None	---	---	>6.0	---	---	Low	Moderate.
WaB, WaC Wagram	A	None	---	---	>6.0	---	---	Low	High.
WeA Wahee	D	Occasional	Brief	Dec-Apr	0.5-1.5	Apparent	Dec-Mar	High	High.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 18.--ENGINEERING INDEX TEST DATA

[Tests performed by the Office of Materials and Research, Georgia Department of Transportation. Dashes indicate data were not available. NP means nonplastic]

Soil name, report number, horizon, and depth in inches	Classification		Grain size distribution							Liquid limit	Plasticity index	Moisture density		Percentage volume change		
			Percentage passing sieve--				Percentage smaller than--									
	AASHTO	Unified	No. 4	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm			Maximum density	Optimum moisture	Total	Swell	Shrink
										Pct		Lb/ft^3	Pct	Pct	Pct	Pct
Troup sand:[1,2] (S75GA-205-004)																
Ap---------- 0-9	A-2-4(00)	SM	100	99	67	19	13	08	06	--	NP	117	11	3.1	2.1	1.0
A22---------19-52	A-2-4(00)	SM	100	99	69	19	12	08	06	--	NP	117	11	1.7	1.6	0.1
B21t--------56-68	A-2-6(00)	SC	100	99	66	30	29	24	22	27	12	114	12	6.2	4.5	1.7
Troup sand:[1,3] (S75GA-205-005)																
Ap---------- 0-8	A-2-4(00)	SM	100	100	66	16	10	07	04	--	NP	117	11	5.0	4.5	0.5
A22---------24-49	A-2-4(00)	SM	100	99	70	17	13	09	07	--	NP	120	10	7.1	6.9	0.2
B2t---------55-72	A-2-4(00)	SM-SC	100	98	63	23	20	17	16	23	04	116	12	6.6	4.5	2.1
Troup sand:[1,4] (S75GA-205-006)																
Ap---------- 0-6	A-2-4(00)	SM	100	100	70	16	10	05	04	--	NP	117	11	--	--	--
A22---------19-42	A-2-4(00)	SM	100	99	70	21	13	09	07	--	NP	121	10	--	--	--
B21t--------50-65	A-2-6(00)	SC	100	99	74	32	26	22	20	29	12	112	13	--	--	--
Wagram loamy sand:[5] (S75GA-205-001)																
Ap---------- 0-9	A-2-4(00)	SM	100	99	76	20	12	07	05	--	NP	117	11	11.0	10.8	0.2
A2---------- 9-31	A-2-4(00)	SM	100	99	82	24	14	09	07	--	NP	120	10	7.1	6.7	0.4
B22t--------47-55	A-4(00)	SC	100	100	80	37	29	26	24	24	09	128	12	9.6	6.0	3.6
Wagram loamy sand:[6] (S75GA-205-003)																
Ap---------- 0-8	A-2-4(00)	SM	100	99	76	20	11	07	05	--	NP	117	11	4.2	0.2	4.0
A2---------- 8-31	A-2-4(00)	SM	100	100	68	21	20	12	10	--	NP	121	10	6.6	0.8	5.8
B2t---------36-60	A-2-6(00)	SC	100	99	77	34	30	26	25	27	12	111	13	6.8	2.0	4.8

[1] Troup sand: Pedons are taxadjuncts because there are few nodules of plinthite higher in the profile than the allowable limits for the Troup series.

[2] Troup sand: 1.0 mile southwest of Greenwood on Georgia Highway 97 and 0.6 mile south of highway; in Mitchell county.

[3] Troup sand: 4.6 miles north of Grady County line and 3.03 miles east of Georgia Highway 97; in Mitchell County.

[4] Troup sand: 4.6 miles west of intersection of Georgia Highways 97 and 112 and 0.6 mile north of Georgia Highway 97; in Mitchell County.

[5] Wagram loamy sand: 0.75 mile southwest of Greenwood on Georgia Highway 97 and 0.75 mile south of highway; in Mitchell County.

[6] Wagram loamy sand: 5.85 miles west of intersection of Georgia Highways 37 and 97 and 1.8 miles north of Georgia Highway 97; in Mitchell County.

TABLE 19.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Albany	Loamy, siliceous, thermic Grossarenic Paleudults
Bigbee	Thermic, coated Typic Quartzipsamments
Bonneau	Loamy, siliceous, thermic Arenic Paleudults
Carnegie	Clayey, kaolinitic, thermic Plinthic Paleudults
Clarendon	Fine-loamy, siliceous, thermic Plinthaquic Paleudults
Coxville	Clayey, kaolinitic, thermic Typic Paleaquults
Duplin	Clayey, kaolinitic, thermic Aquic Paleudults
Esto	Clayey, kaolinitic, thermic Typic Paleudults
Faceville	Clayey, kaolinitic, thermic Typic Paleudults
Goldsboro	Fine-loamy, siliceous, thermic Aquic Paleudults
Grady	Clayey, kaolinitic, thermic Typic Paleaquults
Greenville	Clayey, kaolinitic, thermic Rhodic Paleudults
Hornsville	Clayey, kaolinitic, thermic Aquic Hapludults
Kershaw	Thermic, uncoated Typic Quartzipsamments
Lakeland	Thermic, coated Typic Quartzipsamments
Lucy	Loamy, siliceous, thermic Arenic Paleudults
Maxton	Fine-loamy over sandy or sandy-skeletal, siliceous, thermic Typic Hapludults
Meggett	Fine, mixed, thermic Typic Albaqualfs
Muckalee	Coarse-loamy, siliceous, nonacid, thermic Typic Fluvaquents
Norfolk	Fine-loamy, siliceous, thermic Typic Paleudults
Orangeburg	Fine-loamy, siliceous, thermic Typic Paleudults
Osier	Siliceous, thermic Typic Psammaquents
Pelham	Loamy, siliceous, thermic Arenic Paleaquults
Red Bay	Fine-loamy, siliceous, thermic Rhodic Paleudults
Suffolk	Fine-loamy, siliceous, thermic Typic Hapludults
Susquehanna	Fine, montmorillonitic, thermic Vertic Paleudalfs
Tifton	Fine-loamy, siliceous, thermic Plinthic Paleudults
Troup	Loamy, siliceous, thermic Grossarenic Paleudults
Wagram	Loamy, siliceous, thermic Arenic Paleudults
Wahee	Clayey, mixed, thermic Aeric Ochraquults

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